GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

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STRAY STRAWS

FROM DR. C. C. MILLER.

THE WORST SPRING here in 30 years.

CHICAGO is the place; October 11, 12, 13, the time.

IF ROBBERS get started on a queenless colony, giving a queen will be a big help.

YOUR WIFE shouldn't wear her best clothes to the World's Fair. Take something that won't show dirt.

A FEAR OF WANT on the part of the bees is about as disastrous as an actual want.—*R. L. Taylor, in Review.*

FIFTY PER CENT increase in the crop of cucumbers is reported by Dr. Hicks, in *A. B. J.*, as the result of keeping bees near them.

WILL BEES REALLY build up faster with daily feeding in spring than without it, providing *abundant* stores are in the hive?

WHEN BEES will not defend themselves against robbers, R. L. Taylor says, in *Review*, the best way is to let robbers and robbed swap places.

THE BEE-KEEPERS' SHOW at the World's Fair is in the southeast corner of the gallery of the Agricultural Building. A. I. Root's case is at the extreme corner.

"BOTTOM-BOARD," S. T. Pettit thinks, is not so good a name as "floor." The latter has a decided advantage as to length. Has the longer name any advantage?

JUST AS I FEARED. Although my loss in cellar was light, the loss from this terrible spring has been heavy, so that I expect to reach a total loss of about 40 per cent by June 1.

THAT BOY ZED, of Jake Smith, is a right smart youngster, but I venture the guess that his honey-peddling machine was hatched in the brain of a certain engraver in Cleveland.

MR. EDITOR, what makes you print such aggravating things from Rambler? Look at that $1.50 to $2.00 per pound for honey. Think of $75 to $200 for the yield of a single colony!

NO FLYING weather for bees for weeks till May 19, when it suddenly changed to summer, and fruit-bloom and dandelions opened all at once, dandelions having tried to open weeks before.

A HIVE-COVER made of two boards, joined by a V-shaped strip of tin, warps as bad as or worse than a cover made of a single wide board, probably because the wide board contains better lumber.

"ASK YOUR BEES questions, and you will get honest answers," says John F. Gates, in *C. B. J.* The only trouble is to know just *what* the question was—that is, all the conditions put with it.

EDITOR YORK thinks if the honey-yield comes up to the improved apicultural journalism of to-day, all will be well. Yes, if it should turn out so, bee-keepers could have new overcoats for next winter.

LAWYER MOORE is right; don't lie about yourself by saying guilty when you're not guilty, any more than you would charge guilt upon some one else. Stick to the truth, no matter what it costs you.

RATH FUER ANFAENGER heads an item in that progressive paper, the *Progressive Bee-keeper*, which means that, hereafter, there will be a department of advice for beginners, printed in German. Good idea, and may pay.

IT MAY BE WELL to know that, as a general rule, a 16-foot board is better lumber than a 12-foot one. Good lumber works into longer boards than poor—at least, dealers have told me so, and some years of observation corroborates it.

FERTILIZED QUEENS, Simmins says, never fight. Long ago I reported in GLEANINGS a case in which two laying queens remained for days in the same cage, and afterward successfully headed colonies. I never saw two laying queens show fight. Did you?

IS THE INSTINCT for storing pollen the same as that for storing honey? Will bees continue to store pollen as they do honey, just so long as they can get it and find room for it, or will they let up on gathering when well stocked? Can any one give an answer with proof?

DICTIONARIES have not the right to make words—only to give and define those already in use. Will the friends who suggest new terms in bee-language please remember this? Urge all the improvements you can in our nomenclature, and get them into use, then the dictionaries, if they are alive, will be obliged to introduce them.

SOME TIME AGO I mentioned in GLEANINGS that a queen was better received if hungry. Simmins has reduced the thing to a system, which he says rarely fails, no matter how long or short a time the colony has been queenless, or whether it has brood or queen-cells or not. After fasting half an hour, run the queen down from the top of the hive, after dark, and don't disturb for two days.

SIMMINS has made a decided improvement in his non-swarming plan. Formerly the plan was to have the bees always building comb between the brood-nest and the entrance, as fast as the bees built the comb, cutting it out and fitting it into sections. Now he puts sections under instead of brood-combs, then raises the sections when well started.

HUTCHINSON disputes Simmins' idea that comb honey will always be a luxury, and extracted come into general use. Hutchinson says comb honey is nearer a staple than extracted, the latter competing with cheap syrups. But will not that very competition, by bringing down the price, do just so much toward making extracted a staple?

THE NEW YORK exhibit of honey at the World's Fair proves clearly that comb honey can be kept from one year to another in good condition. It can be seen there by the ton just as white and nice as when taken from the hives. The only secret about it is that it was kept in a room heated all winter to about 50 degrees. In a flush season, with very low prices, it might pay to hold honey over in this way.

CELLAR WINTERING.

THE RESULTS OF SOME INTERESTING AND VALUABLE EXPERIMENTS MADE BY B. TAYLOR; UPWARD VENTILATION A SUCCESS; SEALED COVERS A FAILURE.

Editor Gleanings:—Nearly all apiarists agree that successful wintering is one of the most important questions connected with bee-keeping. There is more loss from failure in wintering than from all other causes combined. There has always been much difference of opinion among leading lights as to the real cause of bad wintering. Some apiarists have laid the cause to a lack of ventilation in wintering-cellars; others, to the excessive supply of pollen; others, to poor food, honey-dew, late fall honey, too much ventilation of hives, too little ventilation; and many other fancies have been brought forward. Lately, sealed covers have been suggested as a great remedy for winter troubles. Books have been printed and widely advertised, recommending this new discovery. This new theory was from the first, to my mind, contrary to both theory and practical experience; yet I gave it a thorough trial, only to meet with severe loss.

In the fall of 1892 I resolved to begin a series of more careful experiments in regard to the part that the preparation of hives themselves plays in wintering. I had what I now have reason to believe to be a fact—a wintering-cellar as nearly perfect as present knowledge permits; hence any cause of loss would be in the condition of the colonies and hives themselves, and not in the place in which they were kept; so I resolved to try several plans of preparing the hives for winter.

No. 1.—I prepared 25 hives as follows, and placed them in one division of my new cellar. I gave each colony two sections of my double hive. I removed two combs from each section, leaving eight in each. These eight combs were spread to fill the ten frame hive. The hives were raised two inches from the bottom-board. When all was quiet, a square of light cotton cloth was spread over each hive, and on top of this was placed a shallow box three inches deep, full of sawdust. The entrances at the bottom were left open the entire width of the hive, front and rear. Now, remember, these swarms were each left on sixteen combs in two sections of a shallow hive, thus making very roomy quarters. Each had large stores of sealed honey, mostly in upper sections. The temperature was about 42°, without 2° of variation.

No. 2.—I next prepared 25 hives, exactly as in No. 1, except that the solid hive-covers were left on, and then four thin slips of wood, $\frac{1}{25}$ of an inch thick, were put under each corner of the cover, raising it slightly from the hive-top and leaving a little ventilating crevice on all sides of the top of the hives. They were placed in the same apartment of the cellar as No. 1. In the other apartment of the cellar 20 hives were placed, with sealed covers on, just as the bees left them. The covers were $\frac{7}{8}$ solid boards, and the hives were full, brood-chambers holding 10 combs, 8 x 13½ inches inside of frames. They were raised 2 inches from the bottom-boards. They were good swarms, with plenty of stores; were put in at the same time as the others, and kept at the same temperature, 42°, as the others.

April 6, in an article for the *Bee-keepers' Review*, I wrote, in regard to groups Nos. 1 and 2:

> These bees have remained quieter the entire winter than any like quantity I ever knew, and I examined them to-day (April 6th) and the colonies are all alive and *absolutely quiet.* There is not a speck of dysentery on one of the white hives, and there have been fewer dead bees on the cellar bottom than I ever had from a like number of colonies. These bees are still in the cellar, and at present it looks like a case of *perfect wintering;* but it does not prove that they might not have wintered equally well without covers of any kind, and with less work in preparing.

At the time of writing the above there was a day or so of fine weather, and I commenced to move my bees from the cellar to the summer stands; but I had the good luck to get out only 10 swarms the first afternoon. Next morning the weather had changed to cold and stormy, and continued so until the 20th, when snow fell to the depth of 15 inches, and from that date until May 8th there was not a day in which I could safely put out the bees. Let me here say, that, in my article of April 6, I reported, in mentioning the 20 colonies with sealed covers, "They have been more restless than those covered with porous covers. The hives are damp and unsatisfactory, and more bees have flown to the cellar floor." Early in May I became alarmed for the safety of my bees. The weather continued so cold I dared not put them out, and I found several dead; but the colonies continued very quiet, without the least sign of dysentery, and on May 6th I began to put them out. As those lots, Nos. 1 and 2, were very quiet, I began in the south half of my cellar, in which the 20 colonies were. There were some 50 colonies in this part also, in double hives of my old double brood-chamber hives, with combs only 4½ inches deep. The covers on these were raised slightly with thin slips of wood, like group No. 2. We found these bees in good condition; only about 10 per cent were dead from starvation.

We next went to the 20 hives with sealed covers, and 19 out of the 20 were dead. The hives contained stores in plenty; but the hives and combs were soaked with water, and the combs nearly rotten with mold. Nearly the whole colony of dead bees was on the bottom-boards, in a stinking, disgusting mass. The weather continued fair, and on May 8th we began to remove group No. 1 to the new house-apiary. These colonies had about 5 per cent loss by starvation; but the bulk of them, seeing they had been confined without a flight for six months and four days, were all that one could wish. The hives and combs were dry and clean. Many of the bottom-boards were nearly as clean as in summer; the bees were bright,

and so still that we carried all of the 24 colonies, that I put into the house, without closing the wide entrance in both front and rear, and, I believe, without a single bee taking wing; and some colonies remained several hours before they found that they were at liberty and flew out.

We found group 2, with board covers raised slightly, in about the same condition as No. 1, except, I must confess, in just a little better condition, taken as a whole. The hives, combs, and bees, were all one could ask; and it speaks volumes for top ventilation. I never removed all these hives from the cellar until the 12th of May, but found the swarms all right at that date. This seems too late in the season to expect good results; but as the willows, boxwoods, and soft maples are just coming into bloom, and as clover is booming on every hand, the people at the Forestville apiary are cheerful, and full of confidence for the future of the honey business. The 12 colonies in my little house-apiary had two dead swarms that were entirely out of stores. The colonies with enough honey wintered in this most trying of winters, in which they never flew from the hives for 4½ months, in a more perfect condition than colonies in the cellar. The hives, combs, and bees, were without dampness or mold, and some of the bottom-boards were entirely free from dead bees. I can say, I believe truly that I lost 19 colonies this winter in further testing sealed covers. I first thought that they had starved; but we have just finished cleaning up the hives and combs, and found every hive with an abundance of sealed stores. I have long believed that the proper preparation of the hives for winter is the key to safe wintering in a good cellar: and I am thoroughly convinced that, except to keep out mice and other intruders, hives with the covers entirely removed, or with a single thickness of burlap or cotton sheeting spread over the hives, is better than any cushion or cover of any kind. My next choice is building-paper. With this I have not a single fault to find, after years of use, except the trouble of putting it on; and if I were going to use light covers I should prefer it to the best absorbent cushion you could make with any material I am acquainted with.

I visited a bee-keeper at Dover, Minn., last March, who has been very successful in wintering. He leaves his hives entirely without covers. For full particulars of this visit, see the *Bee-keepers' Review* for May, page 129.

I see in a late issue of GLEANINGS that Mr. Foster, of Mt. Vernon, Iowa, has been visiting an Iowa bee-keeper who has been very successful in wintering with a single thickness of cotton sheeting spread over the hives; and those who have read the early writings of M. Quinby will remember that, before he adopted the movable frame, he wintered his box hives in a dark room, turned upside down and left entirely uncovered; and I do not believe that there is a better way to-day.

This may seem to be a long report to make on wintering at this time of year; but I have just received a letter from a Minnesota bee-keeper who has lost all his bees, 253 colonies, this winter, and I am convinced that 75 per cent of all the bees in this section are dead to-day. So you see wintering is a vital question; and there is no better time to impress people with it than when they are just feeling their heavy losses.

Forestville, Minn., May 13. B. TAYLOR.

[We have read over your article with more than ordinary interest, and we are inclined to believe you are right, in the main; and yet there is H. R. Boardman, who invariably uses *sealed* board covers, and who has uniformly good success in cellar wintering. But he leaves the bottoms of the hives off entirely. It is very possible that a large amount of bottom ventilation secures very nearly the same results as top ventilation with bottom-board on the hive as in summer. We should be pleased to have Mr. Boardman review this whole matter, for we believe no one is more competent to speak on this question than he, unless it is our energetic friend B. Taylor. Dr. A. B. Mason has wintered successfully in his cellar for years, with ordinary tight bottom-boards, with the usual entrance, the top of the hives being covered loosely with an ordinary sheet of duck. You may remember that, three or four years ago, he reported some quite phenomenal results in wintering on this plan. Perhaps Dr. Mason can give us some suggestions also.]

FRUIT-BLOOM FERTILIZATION.

THE INDISPENSABLE PART THAT BEES PLAY IN THE MATTER.

This question has been sent in for me to answer: "Do you think apple and pear trees would yield more fruit if bees were kept on the same farm? I have two orchards, with no bees kept within three miles of them, although I keep a few bees where I live. Every condition that I can think of seems to be favorable surrounding these orchards, unless it is that no bees are near, yet the trees do not yield well, and I thought that it might be on account of scarcity of bees during the blossoming period."

As this is a question of importance to nearly every reader of GLEANINGS, I will answer it through your columns, Mr. Editor, if you will permit me to do so. By way of replying to the above, I wish to say first, that there is no doubt that the *great* and *first* purpose for which bees were created was for aiding in the fertilization of flowers of different kinds; the honey part as a food, and as a delicacy for man, comes in as secondary, although but very few think of the matter in this way. A few years ago, while riding on a crowded stage some distance from home, one of the passengers began a tirade against the bees of a certain bee-keeper who lived in his vicinity, telling how they were injuring the fruit in his section, and how the farmers about him could not secure a large yield of buckwheat very often, on account of the bees kept by this man sucking all of the honey nature provided for the maturing of this grain out of it while the berry was in the embryo form in the blossom. When he had finished speaking, he showed by his countenance that he thought his wisdom along these lines much superior to that of any of the other passengers; and from different remarks it appeared that the most of those about him indorsed what he said. There was no one in the stage whom I knew or who knew me, so I saw that I had a chance to correct a wrong impression without being accused of selfishness on my part; consequently, in substance, I said that I did not consider the ideas advanced by my friend as sound; that I believed the honey was placed in plants for the express purpose of enticing the bees to plants and flowers which needed the bees for fertilization purposes. To this end, I continued, we find honey (or nectar) secreted only in such flowers as are incapable of self-fertilization; while those being capable of being fertilized through the agency of the wind, etc., secrete no nectar to entice the bees. As an example, we see wheat, oats, barley, corn, and herd's-grass, all capable of being fertilized by the rustling of their stalks by the gentle breeze, and none of

these secrete honey, as all of you know, although there are a few who claim that bees secure honey from corn. Then there are all the clovers, all of the squash and other vine family, and buckwheat, none of which are capable of being fertilized through the process applicable to the first. All these last named, secrete honey for the sole purpose of enticing bees, flies, etc., for fertilization, so that they may mature seed that the species may be perpetuated. The same thing holds good with trees of all kinds; hence the claim put forth by some, that the bees injure fruit by taking the nectar out of the blossoms, is a false one. I then told them of the law a few jealous persons succeeded in passing in a certain township in Massachusetts, banishing bees from that town; how the result was, that little or no fruit developed in the interior of that township, while all along the boundary, fruit was as plentiful as ever; and that, after this experience regarding their folly, they were glad to welcome the bees back again, when they again had fruit as formerly. I also told them of the importation of bumble-bees into Australia to fertilize the red clover; of Gregory's experiments with squashes by tying netting over the blossoms, etc.; then I had the whole number converted to my side of the question, unless it was the man who had denounced the bees. Whether he was converted or not, I do not know; but I do know that he made no reply to what I said. When men plead that bees injure fruit by taking away the saccharine matter secreted for and needed by the fruit in its development, they show their ignorance; and it is the duty as well as privilege of every beekeeper to dispel this mist of ignorance which is abroad in the land.

Now to our correspondent's question. He asks if more fruit would be obtained if bees were kept on the same farm. Logically speaking, the more bees kept, the more fruit; but, practically, 100 colonies of bees, from one to one and one-half miles would be amply sufficient for the needs of all flowers a mile and a half from that apiary; that is, fruit would set to perfection for a distance of one and a half miles in all directions around that apiary. Three miles from this should be another such apiary, and so on. But such system as this is not often found; but hives by twos, fives, tens, fifties, etc., are scattered all over the country, and in this way nearly all fruit-growing districts are supplied with all the needed agents of fertilization which the fruit-grower needs. If, as our correspondent states, no bees are kept nearer than three miles, and there are none in the woods near his orchards, I would procure some by all means. If the location is otherwise good for bees, it would pay to do so for the honey they would give as surplus, as well as the fertilization of the fruit.

Borodino, N. Y. G. M. DOOLITTLE.

WORLD'S FAIR.

DR. MILLER'S IMPRESSION OF IT; EXORBITANT CHARGES, ETC.

So many contradictory reports have been published concerning the World's Fair, I think the readers of GLEANINGS may be interested in having some little account from one of their own number who has been on the grounds. You see, I live a good deal nearer Chicago than friend Root does; so, instead of sending some one from Medina he got me to go in and set up his exhibit. While I have not had the opportunity for sight-seeing that one would have who could devote his whole time to that purpose, yet during a stay of several days I could not help finding out pretty well how things were going.

I'm not going to try to tell you what is to be seen, but leave that for friend Root after he goes there. He will tell it in a more interesting way than I can, only he will be a little at a loss whether to decide that there is so much to say that it isn't worth while to try it at all, or to take up a whole number of GLEANINGS with it. I think, however, he will compromise by giving quite a story in several numbers, and you may be sure it will be good reading.

I was somewhat posted beforehand, for I take daily the Chicago *Record*, and for months there has been never less than two columns about the World's Fair, and from that to two pages. By the way, I want to advertise that paper a little right here. It's a marvel of Chicago enterprise. Think of getting daily a newspaper having 8 pages, and sometimes 10 or 12, for less than a cent a day! It stands up sturdily for Sunday observance—the proprietor, Victor F. Lawson, one of the World's Fair directors, giving his vote always on that side. It has no Sunday edition.

Let me tell you that the Fair is not half finished, no matter what the papers say. It does not seem possible that the exhibits can all be in shape before the middle of June. And yet there is more than you can see in a good many days now. If it never was any more than it is now, it would be a big thing. The very immensity of nearly every thing connected with it seems to have the effect of belittling to some extent. For instance, there is one building that at a distance looks like a low shed-like affair, and yet it is the largest building ever erected on the face of the earth, covering 30 acres of ground, with 14 acres more of floor room in the gallery. There are 11 acres of skylights and 40 carloads of glass in the roof. I haven't been in it, but I've seen it at a little distance every day; and do you know I can't get that building to look any bigger than one a five-acre lot would hold out in the country? On the Agricultural Building are figures of men and animals that looked but little larger than natural, till one day I saw a workman standing by the figure of a man, and the knee of the figure came just to the armpits of the workman. In the same building is a cheese from Cadada, weighing 22,000 lbs., but it hardly looks it. So the first feeling, on looking at some of the immense affairs you have read about, is one of disappointment that they look no larger; but every day you see them they seem to grow in size.

One of the things that I was interested to know was, whether the stories told of the extortion and great cost of every thing were true. Well, it's a good deal as you choose to look at it. I could fill pages telling you about the many great and beautiful things you can see for the small sum of fifty cents, and how every thing is specially arranged for your comfort; and I could take a blue view of affairs, and fill as many more pages telling how some one is ready to fleece you at every step, and that discomforts are on every hand. I was amused at a couple with a young daughter beside whom I walked for some distance. They were railing at the way things were done, and the difficulty of finding any thing. The old lady was saying, "I'm getting to know what *I* think of the people of Chicago." And then she looked sidewise, partly addressing me as she said, "Why, if the people of Chicago who have lived here all their lives can't direct you where to find any thing, what is to be expected of strangers?" She seemed to take it in high dudgeon that every one in Chicago was not ready to tell her every thing she asked, just as

if it was the business of every Chicago citizen to know all about the Fair, and take special pains to instruct her! I suggested that some of the people of Chicago lived ten or fifteen miles away from the Fair, and it was not solely a Chicago enterprise, and that they could find out some things by asking the Columbian Guards. "The guards!" sniffed the old gentleman; and then he used a word that wouldn't look pretty in print as he said, "The guards don't know as much as we do."

Now, the fact is that the guards are well posted, considering the amount there is to learn about in 640 acres, and they are always accommodating and pleasant, ready to answer all the questions asked, in a way that makes you feel in a little while that every guard you meet is one of your friends.

On a wet day you will find it disagreeable getting around, as the mud, although not deep, covers nearly all the pavements. But that's getting better all the time. Likely enough, before you enter, a fakir in the guise of a good Samaritan will tell you that you will become very tired, and will want to sit down, and that you can't get a seat for less than ten cents, and he'll sell you a nice stool for a dollar. When you get to the gate you will not be allowed to take in the stool, and you'll not know which to curse most—the fakir or the exposition company. For a stipulation, the authorities have granted to one company a monopoly of the stool business; and if you carry a stool around with you, you must pay ten cents a day for it. If you want to hire the use of a rolling-chair in which to push around your wife or mother, you will have to pay 40 cents an hour for the use of it. It will cost you 75 cents an hour for one of these chairs, with a guide to push it around. Your indignation at paying so much will be somewhat softened to think that, by so doing, you are helping some poor fellow to work his way through college; for these guides are made up mainly of students from the different colleges.

I have seen estimates as to how much it will cost you to see all the Fair, amounting to a number of dollars. The plain truth is, you see the Fair for just fifty cents a day. Along Midway Plaisance are foreign villages, theaters, etc., that you can see for nothing from the outside; and I am told that the outside view is something worth while; but you can not enter these places without paying admission, just as you pay admission to the side-shows at county fairs to see the double-headed baby, the learned pig, etc. But you can continue sight-seeing for many a day, at only 50 cents per day. You'll do well to train your legs for walking, some days in advance; for if the phrase "magnificent distances" applies anywhere it is at the World's Fair.

With regard to water, the papers have said you couldn't get a drink without paying for it. In no part of Chicago, at no county fair I have ever seen, is water so easily had as at the World's Fair. It is in square boxes, like dry-goods boxes, scattered over the grounds everywhere, free, cold, and good; and I haven't seen a chance to get any kind of drink by paying for it, but there undoubtedly will be, perhaps are now, places for selling lemonade, etc. Hygeia water, piped from Waukesha, will be for sale at a cent a glass, but it isn't to be had yet.

Except in the State buildings, seats are scarce; but I am told there are to be seats scattered over the grounds. Extortion is practiced in cases where you get in a tight place to get something in the line of work done. In some cases it seems a matter of necessity that delays make it very expensive for exhibitors to get any thing done. It depends a little on the way you look at things whether you call it vexatious and expensive delay or extortion. Perhaps you may submit to the delay and extortion, perhaps you may wiggle out of it. I'll give you an example of both extortion and delay: I needed 212 feet of boards, to be built on to one side of the case for friend Root's exhibit, and the carpenter work for it. I found a boss carpenter who agreed to let me have two hands to work any minute I was ready for them, charging fifty cents an hour for each of them (50 to 60 cents per hour is the usual price for eight hours' work, and 50 per cent is added for any thing over that time). But the carpenter told me that I would have trouble in getting the lumber, as the lumbermen were two days behind orders, and some of his jobs were now waiting on that account. The prospect of two days' delay was not pleasant. Acting on the advice of my son Charlie, who is one of the Columbian Guards, and whose advice has served me well on more than one occasion, I concluded to try to shorten the delay; so I took my stand (or, rather, Charlie did) at a spot where teams were going back and forth, and in perhaps half an hour I caught a Dane with an express wagon. I got on the wagon with him, went to the nearest lumber-yard, got the lumber, and came back quite elated. But when I got to the Agricultural Building I found a long line of wagons standing waiting their turn. It would be several hours before I could get in. I wasn't so much elated. I went in to the man who has such things in charge, told him my fix, and asked him if he couldn't have the boards trucked in for me. Oh, yes! he would have them trucked right in, and it would cost me only $2.00. I demurred, and he very coolly told me to find some one else. It was a case of extortion, pure and simple; and the question was, which was cheaper—to submit to the extortion or delay. If I submitted to the delay, of course the expressman must be paid for his time. I thought I would try not to submit to either. I went into the building, put on my best-natured smile, and told my carpenters I was ready for them to go to work. I thought the chances more than even that they would tell me they were carpenters, not porters, when I told them the first thing was to take the boards on their shoulders and carry them in. But they were good-natured about it, and went right to work. The expressman helped, and then frightened me by charging only 60 cents for bringing the stuff.

But in other cases the way out is not always so easy. In one case after waiting half a day a man paid $3.00 for half an hour's hauling.

Prices for food on the grounds are, to a large extent, extortionate. Don't submit to it. Bring a lunch on the ground with you. If you don't want to lug your lunch around with you, have it checked for you at the Illinois Central R. R. building (there may be other places), at a cost of ten cents.

As to the cost of supper, lodging, and breakfast, you can make it about what you please. You can get good board at hotels, close by the grounds, for $25 a week; and if that isn't high enough, you can have better rooms and make it higher. I'll tell you how I did. Charlie told me of a very nice restaurant, right close by the grounds, corner of 63d St. and Hope Ave. Every thing is nice, clean, and good, with prices just the same as they have always been at such restaurants in the city. I went into a hotel and asked what I could have a bed for. Two dollars and a half. As I didn't promptly say I wanted it, the clerk said he could give me another one for two dollars; but I left. Then Charlie skirmished around and found a place for me. I got a nice clean comfortable room

and bed for $1.00 a night; and if I wanted it by the week I could have it for $4.50. The place is Hotel Linwood. All the new hotels seem to have that fool way of having the names wrong end foremost. It is on the south side of 63d St., just a little west of the restaurant, and I think it is No. 336.

I give you particularly these places, that you may have some place you know about. Possibly you may do better. If you wish, you can, for five or ten cents, get to any of the Chicago hotels. Bee-keepers will remember the Commercial, corner of Lake and Dearborn Sts., where bee-conventions were held. Their prices are unchanged, and you can have supper, lodging, and breakfast for $1.50.

So you see you can get along very nicely for $2.50 a day, admission fee and all. If you want to be very economical you can take off a dollar from that, for beds are to be had for 50 cents or less, and you can get cheap lunches and stuff at bakeries. But I don't know the ropes well enough to know where you can get *good* beds at low rates.

If you can make only one visit to the Fair, by all means wait till the show is more nearly completed. A. I. Root ought to come right away. After staying a little while he would find there is a bigger thing here than he ever dreamed of. Then he would go home and make arrangements to come a little later, get a cottage for his family, and spend the summer. It would be as good as a summer in Europe, and at much less expense. C. C. MILLER.

Marengo, Ill., May 18.

We have just received the following circular from The Young Women's Christian Association of Chicago, which will explain itself. It will be of great benefit to those of our lady bee-keepers who intend to visit the World's Fair.

OFFICE OF
THE YOUNG WOMEN'S CHRISTIAN ASSOCIATION,
ROOM 61, 243 WABASH AVENUE,
KIMBALL HALL.

CHICAGO, May 1, 1893.

The Young Women's Christian Association of Chicago, now sixteen years old, has always been an aggressive body in aiding young girls depending upon their own resources for support. It has continuously, since 1876, kept a home for young girls, strangers in the city, opening from time to time new ones. Now it has four homes located at the following numbers: No. 288 Michigan Avenue; 5830 Rosalie Court, near Jackson Park; 367 Jackson Boulevard (West Side); and 3238 Wentworth Avenue. These homes are given as landmarks of safety to young, respectable girls who need protection or information in coming alone to Chicago. These homes, with their limited capacity, if full, *can direct* to suitable lodging-houses The great feature of the work of The Young Women's Christian Association is the Travelers' Aid Department, about four years old. Paid agents, wearing a blue badge marked "Young Women's Christian Association," meet the trains, to aid women traveling alone in making changes, or direct them as to the cheapest and safest way they may reach their destination. No charge is made for this service, as the agents are paid by the Association. Girls are warned not to speak to strangers, but go to the waiting-room, and remain until the badge is seen. The agents may be delayed a trifle, but will gratuitously direct as well as aid in finding the friends or shelter sought by women or girls traveling alone. Young girls proposing to visit Chicago should, three days prior to leaving home, address the head agent, Miss Anson, 5830 Rosalie Court, Jackson Park. State the exact date and time of starting as well as the railroad they will come over.

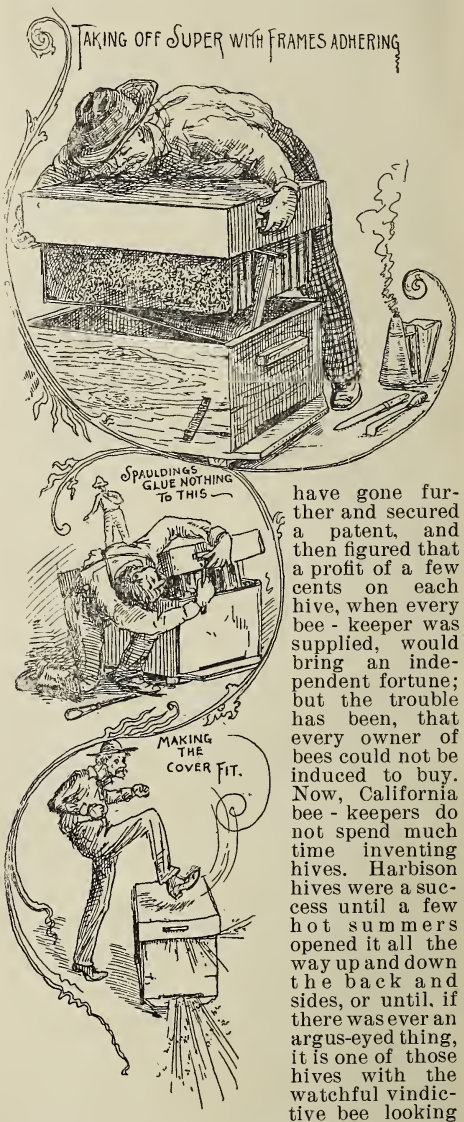
The sole desire of The Young Women's Christian Association of Chicago is to aid young self-supporting girls and women, and to protect them from imposition. Respectfully,

MRS. LEANDER STONE, President.
MRS. A. S. CHAMBERLIN, Secretary.

RAMBLE NO. 85.

NOTES FROM THE APIARY.

The subject of bee-hives does not agitate the minds of California bee-keepers as much as it does those of our Eastern friends. In the East, nearly every bee-keeper has, sooner or later, invented a new hive or a moth-trap, and many



have gone further and secured a patent, and then figured that a profit of a few cents on each hive, when every bee-keeper was supplied, would bring an independent fortune; but the trouble has been, that every owner of bees could not be induced to buy. Now, California bee-keepers do not spend much time inventing hives. Harbison hives were a success until a few hot summers opened it all the way up and down the back and sides, or until, if there was ever an argus-eyed thing, it is one of those hives with the watchful vindictive bee looking out on every side of it. California bee-keepers, as a rule, don't care much about what the hive is if it will only hold together. We find some hives so flexible that, when the frames are removed, the body of the hive can be collapsed. Such a hive, if it could be re-formed again without considerable carpenter work, would just suit our California bee-keeper. The first question usually asked by the buyer of an apiary is, "Will the hives hold together?" Redwood is used to a considerable extent for hives and covers, and it is noted for its straight grain and its beautiful splitting qualities, on a hot day in

June when the mercury is indulging in its climbing propensities, and gets up to 110 in the shade, and somewhat higher in the sun. At such times I have thought that some of my hives cracked just from pointing my fingers at them. I might have been mistaken, however. Hives are sent here largely from the East, and they also may be classed as good and bad, and some are like a species of ham sent here in cans, I believe it is called "deviled" ham. You can infer what kind of a hive that would be; then put into it a colony of Cyprian bees, and an attempt to class it utterly fails.

The Rambler is controlling two apiaries this season, and one of them contains in part a hive of the above description. When I had to give my whole attention to one apiary I hired a very patient-appearing man hailing from Tennessee, to take charge of said hives. The style of hive I refer to is manufactured in Wisconsin. It is of the L. pattern, and I believe it is called the Wisconsin hive. There are no rabbets for the frames, and they all rest on the top of the hive, and the supers "sort o'" telescope over them. After the super has been on a few days, and a fine lot of brace-combs put in by the bees, you can loosen the super from the body of the hive; and, in raising it, lift out every brood-frame with it. If you wish to release the frames from the super before taking it off, you have to stand almost on your head and look up under that telescopic joint and start each frame off with a strong sharp-pointed lever. While thus bent over, with the pants drawn tight over the—the knees, the Cyprians get in some fine work. The manufacturers of this hive had the misfortune to have their factory burned a few years ago; and, soon after, Mr. Hunt and one of his helpers were at work over these hives, when the helper shouted, in a frenzied tone, "Mr. Hunt, do you know why that Wisconsin bee-hive factory happened to burn?"

"Why, no; I don't know that I do."

"Well, somebody bought a quantity of these hives, and became so mad when working with them that he sought a sweet revenge by burning the factory."

In many cases, in order to return the telescopic super or cover, owing to climatic changes and propolis the super becomes a tight fit; and to get it down to where it belongs it has to be stamped down with the foot. Take it all in all, the hive is the most provoking thing to handle that I ever saw, and I am utterly opposed to telescopic joints of any kind in a bee-hive.

Another Eastern hive put in its appearance during the past winter. The inventor and manufacturer came to California for the benefit of his wife's health. The gentleman's name is Mr. G. K. Hubbard, whose advertisement has been seen so much in GLEANINGS. Your readers have all no doubt heard of that good old dame Mother Hubbard, who went to her cupboard, and how kind she was to her poor dog. Well, judging from the kindly ways of Mr. and Mrs. Hubbard when here, I should judge they were lineal descendants of that fine old dame. Mr. H. introduced a few of his hives; but I fear it will hardly suit the general run of California bee-keepers, for I understand it to be an exclusively comb-honey hive; and while I should like to see Mr. H. sell a large number of hives, I dislike to see another style of hive added to the number we already have in this State. The greater variety, the further we get from a uniform hive.

At the present writing, April 29, the season is opening up in fine style in this locality, and I have been converted to the belief that bees will profitably fly five miles and further for honey. While keeping bees in the East, I was taught and believed, after much experience, that bees would profitably fly only about three miles. But here for the past ten days the bees in this apiary are all working toward the Riverside orange-groves, which commence at four, and are abundant at five and six miles and over; still, the honey with a distinctive orange flavor is being stored so rapidly as to restrict the queen's field of operations. Balled sage is in bloom all around the apiary, and an examination of the flower-tubes reveals the minute drop of honey, but still the great mass of bees leave it for the more abundant secretion in the orange-flower, and in quality it is equaled by none. It seems to be about this way with the bees: If honey is abundant five miles away, and a load of nectar can be obtained by visiting a few flowers, it is better to fly five miles than to worry around a nearer field and visit a great many flowers spending much time to get a load. As the bees have nearly a straight course across the valley, with nothing to impede them, their flight is very rapid. It is also evident that bees will fly further for nectar upon a level plain than they will where hills intervene. Our friend Wilder's apiary is about seven miles from the same orange-groves; but hills intervene, and his bees get but little if any of this orange honey.

Perhaps I may be allowed a word with some of my good friends who have held me up in words jocund and otherwise. I would say, by way of explanation to Mrs. McIntyre, in answer to her correction on page 267, that she should never judge from outward appearances. A man in my native town would always smile when he was mad, and really laugh aloud when he was ready to knock a man down. That man was a relative of mine, and I am like him in that respect. That smile at the convention was no indication of pleasure. It covered a great amount of gall and bitterness and silent kicking; my report was correct, and I hereby recorrect Mrs. M.

Mr. Pryal also fell into a grave error on page 303, and, I must say, drew largely upon his vivid imagination, judging from the noise Mr. Mendleson and I heard in their room the night previous. They were practicing for some kind of a blow, and both seemed to have lungs abnormally developed, or what physicians call snore lungs; and while Bliss tried to imitate a thrashing-machine, Pryal tried to outdo the famous Golden Gate fog-horn. Oh, no! the Rambler was not sad over being outdone on the lung-tester; it was owing to being kept awake all of the previous night by these snoriferous friends. Mr. Pryal is now at the World's Fair, and his report will deal largely with lung-testers.

RAMBLER.

CHIPS FROM DIFFERENT BLOCKS.

WOODCHOPPER SCORES ALL AROUND THE LOG.

The Straw man says, March 15th, that more deaths occur now in a day than in a week at the beginning of winter. The births are more now in a day than in a week then, so it's all right, is it not, doctor? But may be your bees are not hatching in the cellar; but those in chaff hives outdoors are.

Pulled queens, to get rid of laying workers, sometimes works, and then, again, it doesn't. Sometimes they will keep the pulled queen and the laying worker both until the queen is mated. I suppose they are waiting to see whether she is a good one, so that, if not, they can fall back on the worker again, and sometimes they kill them at once.

SEALED COVERS NO GOOD.

The Straw man wants to know whether there

shouldn't be a chaff cushion over the cover. Now, doctor, I don't believe in sealed covers at all; but just to be in fashion I fixed up one and put it on the hive in August so as to be sure it would be sealed, and it was as tight as bee-glue could make it; and then when cold weather approached I put one of the same cushions I use on all my hives right over it, one thickness of cotton cloth and six inches of chaff. Now, may be you would like to know how it worked. The cover was partly glassed, so that I could see the bees at any time by raising the chaff-box without disturbing the sealing or the bees either. The first month, all was well; then it began to get damp around the sides of the hive, and soon the bees began to look fat. At the end of another week it was wet. Drops of water were on the glass; bees were getting fatter every week, and soon they began to die; and the drops of water got to be so large that they couldn't hang any longer, and dropped down, forming puddles on top of the frames, and the bees died faster, and the whole colony came up on top of the frames, and were the most miserable-looking set imaginable, while the bees in the hives without sealed covers were dry and comfortable. I saw that they were all going to die right away if they did not get a change, so I pulled off the sealed cover and put on the chaff-box, and in a week the water had gone out of the hive; the bees stopped dying and began to grow smaller, and in two weeks they were all right, and are breeding up again; and although it may be only one straw to show which way the wind blows, it is all I want to do with it until I wish to get out of bee-keeping.

ICE CLOGGING THE ENTRANCE IN WINTER.

As Mrs. Axtell and some others seem to fear there may be danger from ice in winter, I will tell them how my bees were wintered in ice the past winter. To start with, on the 17th of November, without any warning, it began to snow from the northeast, and snowed six inches of the wettest snow I ever saw, with one exception, and it stuck all over every thing it touched, so that the hives were completely covered with wet packed snow; then it turned cold, and froze on, so that it could not be gotten off; then in about a week it rained, and froze as it fell, until there was an inch of good clear hard ice all over the snow, which was frozen to every thing, and the hive resembled a snow mound coated with ice; then it snowed again at different times until the snow was higher than the hives, and, in part of the yard, twice as high, and packed so hard that I could walk right over the hives and not show a track. Now, I thought, is the time for bees to smother if they are ever going to, as they were completely cased in ice, and all that snow on top; but I let them alone until they had been there about six weeks, then I went and dug out a few hives. I found the bees dry and all right. I let them alone another month, then dug out some more, finding this time that they had melted away the ice and snow all around the hive, and were standing each in a little room roofed over with ice and covered with snow; and they stayed so until March came with sunshine enough to melt off the crust and slowly settle down the deep snow; but the bees did not get out more than a few at a time until Mar. 28, having been without a flight since some time in October — I have forgotten just when, but near the close of the month. Upon counting up I found three had starved; one had died of what I call cold-weather dysentery; three of genuine dysentery, and four more were in bad order because they were not in good condition to start with, and had got worse instead of better. They have since died, except one, which still shows a couple of spaces occupied for three or four inches around, with a little brood hatching. I don't believe that bees often smother with ice or snow in the entrance or anywhere else around the hive; and, also, whenever it is warm enough for them to fly, the snow will pack enough on top to hold a bee so that they will fly up again if they get down.

THE WHISKY BUSINESS.

If lots more of us would join you in your protest against having any money we pay for taxes going to build distilleries, and should also go further and protest against helping to build jails and poorhouses, and pay the expenses of courts, and all the various expenses connected with the drink-evil, I think it would be a good thing; for it is an indisputable fact that the government is in partnership with the whisky-business, and objects to a third partner, too, as witness the continual hunt for what they call "moonshiners," or illicit distillers. Now, as this is a government of the people, it either follows that a majority of the people want it so, or are too careless to say what they do want, or it would be stopped; but the fact is, Satan wants the business carried on; and the miserable subterfuge of making a political issue of what is the greatest moral question of the world to-day is keeping the business alive; and we have the spectacle of two great parties, both afraid to do any thing to cripple or seriously interfere with the traffic which is causing more disease and death, and untold misery, than any other one thing on the face of the wide world to-day; and then if you add to it the vast pile of money required to pay the cost of the resulting crimes and poverty entailed, it seems as if no thoughtful person could keep still and let the thing go on; but there are still too many people in the world who think they are not their brother's keeper, and that if a man will drink himself to death it is none of their concern.

FRAMES A LITTLE SHORTER AT THE BOTTOM.

Dr. M., if you want to know just why it would not be a good plan, just go out to your shop and make a few some morning before breakfast, and see how you like them, and may be you can tell us then.

HONEY FROM CHESTNUT-TREES.

On page 254 Mr. Benton makes reference to honey from the above source. Now, I should like to know what kind of chestnut-tree besides the horse-chestnut ever yields any honey. I lived 31 years in a chestnut region, and have watched lots of bees working on the bloom, but I never saw them getting or even attempting to get any honey, but always scrambling about over the long bloom (or tails as the small boy calls them), and getting only a small pellet of white pollen, scantily furnished at that. A great many people claim that they get lots of honey when chestnut is in bloom, but it is always in a place where basswood and chestnut grow in the same part, and the honey comes from the basswood; and the chestnut, making the most showy appearance, gets the credit, both trees being in bloom at the same time. But I hardly take Mr. Benton to be the man to be so mistaken; so if he knows of some kind of chestnut that yields honey, let him tell us about it. Then, too, he says it is gathered before July, and our chestnut very rarely blooms before the 4th of July, and sometimes not till the middle— I mean in the Northern States. I do not know when it blooms in the South.

TWO QUEENS IN A HIVE.

A good many report two queens in a hive; but it is always one old and one young one; but that Strawy Miller keeps two in a hive, right

along (sisters, too), and not a word do we hear about any disagreement; and it seems he has them named, too, for he calls one Emma, and the other one's name I don't remember; and if some smart young rambler doesn't come around and transfer one of these queens to another hive, just to pay off the doctor for his licks at the baches, it will be queer, won't it?

Say, now, Dr. M., why don't you make W. F. C. tell why bees don't put a little of that formic acid in honey-dew? or are they limited in quantity, and daren't try it, even on a small scale?

Queenless bees, as a rule, stop work, doctor, as soon as the brood is all hatched out; and while it is hatching out they fill the combs full of pollen; and, if not supplied with a queen, it will remain, there being no brood to consume. Is that one of the things you "don't know" too? If it is, suppose you make a swarm hopelessly queenless next June, and let it alone as long as there are bees enough left to keep out robbers and all the "Millers" (except one), and then see how much will be left besides pollen.

CAN THE QUEEN LAY DRONE OR WORKER EGGS AT WILL?

I see Dr. Miller is visibly weakening on the compression theory, if he was ever very strong on it; but to help him along a little further, let him put a frame of drone comb in one side of the hive, clear in the back corner, as far as possible from the early brood-nest, then watch and see what the queen will do shortly after a good honey-flow begins; and when she skips two or three frames of worker comb, and goes over to that piece of drone comb, and fills it with eggs, and then goes back to the brood-nest again without laying any worker eggs near the drone eggs. Doesn't it look just as if she knew what she was doing? and then when the queen lays in cells only $\frac{3}{16}$ of an inch deep, where does the compression come in?

ABSORBING CUSHIONS.

On page 363 you say that absorbing cushions often become wet and soggy, and, if not dried out during winter, are worse than nothing; and you further say it is never the thing to do, to place a telescope cover (without ventilator) over the chaff cushions so tight that there is no escape for moisture; and you say such cushions become practically water-soaked. Now, if that is the case with you, it is not with me, for my chaff is always dry; and I never take off the cover during winter to dry the chaff; and my covers are all telescope, and without any ventilation, and those covers get very frosty in cold weather; but when the sun shines it melts and runs down, not among the bees, but outside of the hive, and the cover then dries by the heat of the sun on top; but the chaff never gets wet, except a little spot right over the cover, and that only on top, for it will be dry and warm, you will find, if you dig into it half an inch. And now I should like to know why you call the cushions "absorbing cushions," for it is not proper. They should, instead, be "escaping cushions," or something of that kind; for if they absorb and retain moisture they are not what they should be, for they should throw off this moisture and retain the heat; and to do this there must not be any ventilation above the cushion; for if there is, it will make a direct draft from the entrance, and will draw out the heat from the hive, and the bees will perish from cold, no matter how dry they are: at least, that is the way mine work. I have killed good strong swarms in just a week, in a chaff hive, with six inches of chaff on top, with an inch hole in each end of the cover, close up to the roof, and the summer entrance open full width. I have used chaff boxes more than ten years, without changing the chaff in all that time; and it was clean and bright at the end of the time, which it would not be if it absorbed and held the moisture. WOODCHOPPER.

[Yes, chaff cushions do in our locality become wet and soggy, if placed under telescope covers, without ventilators near the top at each end. This has happened to be the case so repeatedly with us that we almost regard it as an axiom, and we still think so for our locality. Our winters are quite apt to be open, rainy, or misty, a good part of the time; and we find that, where ventilators are used, our cushions keep much dryer. This is another case where practical experience seems to be directly at variance, and for the present we may have to account for the difference by locality. We shall, however, observe the matter more closely during coming winters, and especially note the difference, if any, during dry cold winters and those that are open and more or less moist.]

BEE JOURNALS AND THE SUPPLY BUSINESS.

ARE THEY A GOOD COMBINATION?

THE following is an extract from a well-written article on the subject, and appears in the last *Bee-keepers' Review*, p. 143. Coming as it does from Mr. Hutchinson, who has as little to do with the supply business as any of the publishers, it has great weight. We never read any thing on this subject that was more to the point than this. The position taken is a broad and liberal one, and exceedingly fair to rival publishers who are interested in supplies.

When the *Review* was first started, its editor was in the queen-trade, and he has not yet dropped it. When he gave up the production of honey as a business, he advertised the fixtures on hand. Several times it has become necessary to take goods in payment for advertising, and then it became equally necessary to advertise and sell them.

From actual experience I have learned that it is very difficult for the editor and proprietor of a bee-journal to never offer any thing for sale except his journal; and perhaps there is not so much praisworthp in keeping bee-journalism entirely free from trade as some of us have imagined. Yes, I know that most of us poor mortals are more or less given to bias and prejudice in favor of our own wares, and I would not for a moment ignore this point; but on the other hand, the dealer is more in touch with the consumer; he knows what practical men are buying and using, and this experience has its influence upon his journal. If he uses his journal, or, rather, *mis*uses it, to boom his goods at the expense of truth, or at the expense of space that ought to have been used in giving good valuable reading-matter, there will be a reflex action—it will become a boom*erang*.

Class journals are a little peculiar in this respect. The men who have had experience in some lines of business are the ones in position to make valuable journals pertaining to these kinds of business. A nurseryman can make an excellent horticultural journal; an advertising agent can get up the best journal devoted to advertising; yet he deals in advertising, while the other man sells fruit-trees.

Another point: In making a financial success of a journal, a dealer or manufacturer can sell his journal at a very low price because it advertises his own goods.

While I have no desire to engage in the supply business, preferring simply the *Review* and a small apiary, with peace, quietness, happiness, and contentment, in place of a large business with its hurly-burly, even if accompanied with greater financial success, yet I have had no quarrel, and shall have none, with the man who prefers the latter; as I fully believe that the brightest journal, the one filled with the freshest and most practical ideas, the one with a "touch of Nature" upon its pages, can be made amid the hum of bees and buzz-saws.

GETTING BEES TO EMPTY SECTIONS.

"Along about these days," as the almanacs used to say, the question will again come up as to the best way of feeding out unfinished sections. I doubt the wisdom of keeping over till spring any sections to be cleaned out merely for the sake of being cleaned out. That would better be done in the fall. That is, if a section has just a little honey in it, it is better to have that section left where the bees can rob it out, and in that way they'll make a thorough job of it; whereas, if left till spring it will be granulated and dried down, so that it may not be properly cleaned out when the bees are ready to store in it again.

I know that some believe that a section should never be used the second time; but I can hardly help the suspicion that such persons have been unfortunate enough to use a second time sections that have not been *thoroughly cleaned out*, and I don't know of any way that thorough cleaning can be done but *by the bees*. But if there is any one thing I feel sure of in bee-keeping, it is that a partly finished section, if nice and clean, inside and out, is a profitable thing to use.

If the wood is nice and clean, the comb generally is; but sometimes there will be discolorations, perhaps propolis at the edges or mouths of the cells. Breaking or cutting off may remedy this, but I should expect the invention of B. Taylor for this purpose to be a great improvement. I think, Mr. Editor, that you raised the question whether it would pay to take the time for this. Having never tried the plan, I can not say with certainty; but if used hot enough, it seems to me that both sides could be melted off in at least as little time as it would take to put together a new section and put foundation in it; and if just as clean as the new one, I would rather have the old one.

As I have already hinted, those sections that are kept over to be fed in the spring are those with a larger amount of honey in them, and they have been kept over because we want the bees to have the benefit of the feed. It would seem that there should be no great difficulty in getting bees to empty out sections in the spring; but in actual practice it has turned out in the experience of many a one to be quite difficult.

Probably the first thought with every one would be to put the sections over the hive. Bees often carry down honey out of the sections when we don't want them to, as at the stoppage of a honey-flow, and they carry down well out of a feeder, but they can't be relied on to empty out sections on top. If for any reason I were confined to that as the only way, I should break open all sealed cells and smear honey all over the comb to make it as dauby as possible, for you can count on their cleaning it up; and, once started, they are more likely to continue.

After no little study over the matter, two years ago I settled on a plan that as yet I have not given to the public, and perhaps I ought to apologize for not having done so. It is well known that bees are prompt to appropriate honey at some distance from their hives; and the problem was, to have the sections at such distance that the bees would not consider them under their care, and yet so situated that no other colony could get at them. I'll tell you how I planned it. Under the hive was a bottom-board 1½ inches deep, same as in winter, and right in front of this was a similar bottom-board, the two entrances together. On this second bottom-board I placed a super of partly filled sections. Then I covered over with little boards the passageway between the hive and the super, perhaps 6 or 8 inches, leaving it open at the regular entrance of the hive. Thus you will see that no outsider could enter at any other point than at the regular entrance to the hive, but that the bees of the colony had free passage, and at the same time the honey was so far away that it would seem much the same as standing out in the open air. When a super standing unprotected is found by a bee, it doesn't take long for a large number to find the same place.

Notwithstanding the completeness of the arrangement, the bees had so often disappointed my expectations that I could not feel entirely certain of the result till after I had had their verdict. Placing several supers in position, I think I left them over night before examination. The next morning none of the sections were entirely cleaned out. Indeed, it didn't seem that the bees had done much at them, but I might be mistaken in this. But after several days' waiting, there could be no possible doubt in the matter—the thing was a dead failure. Worse than that, in some of the supers I found dead bees by the hundred. Now, I'm not going to explain why it failed—I don't know. But it looks just a little as though the bees could not find their way back out of the super into the hive, and perished there.

Last year Emma, for some reason, fed sections to such colonies in the home apiary as seemed to need it, without my help. The sections not going under the bottom-bars easily, she deliberately broke the comb out of the section and thrust the comb under. As a security against starvation it was certainly a success. As a matter of economy it was not a success, for none of the combs were of any further value but to be melted up. I expressed my disapprobation of the plan, and together we went to the Hastings apiary to feed in a more sensible manner.

We took along perhaps forty supers, raised up the hive from its bottom-board, set the super on the bottom-board, then set the hive on the super. In some cases we put two supers under a hive. No bee could get in, only at the regular entrance, making it safe from robbers. I could feel sure there would be no starving. But the bees did not seem strongly impressed with the thought that they should hasten to empty every drop of honey out of the sections and carry it to their brood-nest. In short, so far as getting the sections cleaned out was concerned, the plan was an utter failure; for, instead of being cleaned, the longer the sections stayed there the dirtier they got. They were, some of them, not emptied when the honey harvest came, and so blackened and filled with dirt that they were fit only to melt up. Emma might have retaliated, but she didn't.

Some one will say, "What's the use of writing about such things, if you have only failures to report?" Well, it may save others from making the same mistakes, and it would have been worth a good deal to me if some one else had reported these mistakes before I made them.

Now I'll tell you the plan that so far has been fairly successful with me, although it is not warranted to succeed the next time. Take the hive off the bottom-board. Set your super of sections on the bottom-board, and on this place two empty supers, on which set the hive. Put a separator between the super and hive at the front, so that it shall form a sort of bottom-board under the hive, and prevent any bee from entering the super from the outside without going over the full width of the separator. I think in this case the honey is so far down that the bees do not consider it as under their care; and as bees naturally go up to get out of a place, they readily get back to the cluster. The failure last year was perhaps due to the fact that the honey was too close to the brood-nest.

C. C. MILLER.

Marengo, Ill.

JAKE SMITH'S LETTERS.

TRUBBLE INTO THE MEETIN HOUSE.

MR *A. I. Gleenings—deer Sir:*—Weve been hevvin trubble into our meetin-house. Missus Welder is 1 of our members, and she wears the best close of enny buddy into the meetin house. Her man is a member, too, and, bein the richest man in the con gerrygashun, he pays a good eel. Well, the Welders took a notion that wede ougth to hev a noo preecher. I gess the oald one wuzzent spruce enuff for them. His name is Bond — Elnathan Bond. And he doan't preech very floury sermons. Leastways, not floury enuff for them. And he doant dress up slick enuff for them.

Welder sez he doant preech Bible sermons. He preeched a sermon about how men hed ot to vote for men which was uprite, and woodent make laws to sell whisky, and faver horse horse-racin and gamblin and sitch, and Welder sed it wuz bringin politicks into the pullpit, and that wuzzent Bible preechin. He made a good eel of tock about it.

Then Barker's fokes got huffy. Thair boy Jim is about the worst boy around, bein spoiled from a baby, and now he's 16. Evry Sunday he kep up a racket into meetin, back by the dore. Finelly it got so bad that the preecher stopt right into the middle of his preechin and ast him woodent he hev respeckt enuff for the Lord's house to let uthers enjoy the wurship in silents. Jim's muther got her back up about it. Sez she, "Our preecher's alltogether too irritubble. He hezzent tack to git along with yung fokes. He haint no influents over em."

Uther people cood see it different, but they diddent say nuthin. If they had, it mite a bin different, but they diddent say nuthin, for the Barkers wood a soon got over it. But the Welders and the Barkers got toogether and become verry thick. Missus Welder tride to cumfort Missus Barker about Jim bein spoke to rite out into meeting; and the more she cumforted her, the more uncomfortable she felt about it.

Then Missus Welder went to old Missus Bleeker, as good an oald sole as ever lived, but she izzent what you mite call the strongest carrickter in the world, and wants to keep onto the good side of whoever shes with. Missus Welder went to her, and, sez she, "Do you know," sez she, "that they is a awful state of discontentment into the church about our preecher?"

"Law sakes! no!" sez Missus Bleeker; "and him sitch a good preecher! Why, I heddent herd a word of it. And I doant see how weal ever find a man as good as him to take his place, one that evry buddy likes so well, and that has sitch a good influents with the yung fokes. Why, him and his wife has jist bin the makin of the yung fokes Endevver sasiety. It's jist too bad."

"Yes, it's too bad," sez Missus Welder, "but they is a larg feeling of dissatisfaction, and, no matter how good a man Mr. Bond is, we must have harmunny and peas. The church is more consequents than enny preecher, and Ime always willin to sackerryfize my oan feelins for the good of the church."

"Why, yes," sez Missus Bleeker, "I spoze we must do evrything for the best good, but it's too bad, too bad."

Then Missus Welder started for Joe Parks. JAKE SMITH.

This izzent the end.

SOME VENERABLE BEE-BOOKS.

A BRIEF REVIEW OF SOME OF THE WORKS OF THE OLD ENGLISH WRITERS.

A large pile of old books attracted my attention the other day, just as I was going out to our noon service. Now, the sight of an old book has a great charm for me, and so I stooped down and glanced at one. After dinner I asked what the books were and where they came from. After stating their history in brief, Ernest asked me if I would write a description of them for GLEANINGS, as he had no time for such a task, and knowing that their perusal would at least please me, and perhaps be instructive as well. The books themselves seemed so quaint, and yet meritorious from a literary point of view, that it seemed to me a great pity to have them all standing idle in a book-case, like a lot of prisoners waiting for court to open; so I made up my mind to let the bee-folks of today know what those of old times have done; how they grappled with the winter question; how they tried to stop swarming, and how long it took the world to find out the true sexual nature of the queen and drone.

Nothing can better attest the wonderful anatomy of the bee than the vast amount of literature devoted to it, especially in England. In France and Italy, whose climatic conditions are so pleasant, this might have been expected; but to find so many bee-books from England, printed at so early a time, and from the pens of men standing in the highest walks of life, is highly gratifying to one using their language and belonging to their race.

If one be tempted to smile at some of the conclusions of our ancestors, he should remember that, before steam and electricity were harnessed up, communication was slow and expensive; and printing, too, in particular, was very costly when not over 240 impressions could be made in an hour on the old hand-presses universally in use before the year 1800. And then, again, how greatly we are indebted to the microscope in its present magnificent state! Let us rather admire the great results achieved by our forefathers. Who will be reading a copy of the A B C book 236 years hence? or Cook's Manual? and how will such books stand the test of criticism in the year of grace 2130? It seems probable, however, that future writers can only add to the general conclusions now held in regard to the bee, and not sweep them entirely to one side as mere rubbish, as we are compelled to do with the writings of those who lived 200 years ago. That the queen is the mother of the bees; that she is fertilized once for all by the drone, and that the workers are undeveloped females, will never be questioned. But that there is room for improvement in the management of bees is readily granted.

The only regret one can have in describing such books is, that the reader can not see them himself and thus render a description useless; but as that can not be done, the next best thing will be resorted to.

The first book I come to is entitled, "A Theatre of Politicall Flying-Insects. Wherein especially the nature, the worth, the work, the wonder, and the manner of right-ordering of the BEE is discovered. Together with discourses, historical, and observations physical concerning them. And in a second part are annexed meditations, and observatious theological and moral, in three centuries upon that subject. By Samuel Purchas. London: Three Crowns in Cheapside, 1657."

The book has 387 pages, 5 x 7; type four times the size of these letters. The work bestowed upon it may be imagined when we learn that the author compiled it largely from the works of about 400 writers, ancient and modern, whose names he gives. These names are printed also in the margin, opposite a passage quoted from their respective works. This is a very convenient arrangement. But what a wilderness of superstition the author makes his way through! Strange to say, these same false opinions are, in many cases, founded on a half-truth or imperfect reasoning from cause to effect. But it is refreshing to see how readily Mr. Purchas turns from some foolish beliefs that have survived so many centuries. For instance, in speaking of the theory of Virgil in regard to bees being produced by generation and putrefaction from the bodies of bulls, lions, calves, etc., the author says, "Whether there be any solidity in this particular, I am somewhat dubious, because it was never authentically proved." The idea probably originated by seeing bees hovering over a fly-blown carcass. He quotes the words of many ancient writers in reference to the generation of bees as well as of other animals; but his conclusions in regard to the queen, drone, and worker, are, so far as I can see, about as follows: The queen is simply a director of the bees. In all that Mr. Purchas says about her he seems not to have the least suspicion that she is the only female in the hive, and that she lays eggs. How that fact should so long escape the notice of men is the most astounding thing in the history of the bee. To prove that drones are male bees, and not a separate and distinct species, the author speaks of the bees "conceiving" one year and bringing forth the next; and that a colony well supplied with drones will be stronger on account of it! that is, each drone leads off a blushing worker for the next dance, while the queen gives orders. Probably the English of those days never dreamed that queenhood and utility ever exist in the same body, and hence a queen in the hive was supposed to be as useless as one on the throne; and so they interpreted the works of God by those of men.

Speaking of drones our author says, quoting verbatim: "The Drone, whatsoever some may say to the contrary, is the Male-Bee . . . . . by whose natural heat and masculine virtue the Honey-Bee, which breeds both Honey-bees and Drones, conceiveth." What a revelation to such a man would Cheshire's or Cowan's work be!

If those worthy old writers had spent less time in speculating about bees, and put a little more of it on hives, they would have learned more; for much of their error is directly traceable to the abominable skeps they used. In speaking of the proper size of a hive, our author says: "Hives are to be made of any size between a bushel and half a bushel;" but he considers half a bushel rather small. But between extremes he prefers a small hive—or, as we say, an eight-frame one rather than ten-frame.

Only four pages are devoted to hives, and even that little suffices only to show the dense ignorance of those times regarding hives. This was a hundred years before Huber was born. Concerning the material of hives the author says: . . . "some [are made] of square boards, three foot high, and a foot broad; so in scarcity of hives, I have known some use Butter-firkings; some of earth, which they daub with Cow-dung within and without, because the smoothness is offensive, and the heat and cold also otherwise would be too extream."

The other subjects treated of are swarming, enemies, diseases, etc. In spite of the many grotesque fancies in this old book, it is fascinating, no matter where it is opened. The author lived in a transition period, when men were beginning to break away from their faith in Aristotle, Ptolemy, Aristarchus, and others, and to think for themselves; still, they were ready to quote the ancients if it helped their argument. The book gives us a glance now and then of life in England when the government was as headless as the late king (Charles I.), and Cromwell was wielding the last of his brief authority. Nine years after the book was printed London was burned, and doubtless the printing-office with it where the type were set. Such books tell us how far we have progressed over the sea of human invention. W. P. R.

Medina, May 20.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

MORE ABOUT CATFISH.

Mr. Root:—Please tell Mr. Levi A. Ressler, of Napanee, Ind., p. 353, that the best variety of catfish for fish-ponds is the blue (or channel) cat. He can obtain them of W. H. Dye, Philadelphia, Hancock Co., Ind.

Henry, Ill., May 9. BERNARD REISINGER.

ANOTHER SUGGESTION FOR HOLDING OPEN THE MOUTH OF A SACK.

Take an ear of corn or a rolled-up price list in each hand, and roll them in the mouth of the sack from the outside, then you have a square-mouthed sack. One ear will do quite well for one alone. M. W. MURPHEY.
Cuba, Ill.

BAD FOR SEALED COVERS.

Sealed covers are a failure with me. I went into winter quarters with 108 colonies, part of them under sealed covers. Most of them under sealed covers died. The rest are in good shape. I winter on summer stands. We have had a long cold winter in Missouri. G. W. BABB.
Medicine, Mo., May 10.

SEALED COVERS A POSITIVE FAILURE IN WINTERING.

I want to say, in regard to sealed covers, that, during cold weather, they *sweat* so as to be very dangerous. I had two weak colonies that I did not get sealed. I put just one good gunny sack over the frames, and laid on the lid. They both wintered, and were in good shape all the time. I had them open several times in December, also in February and March, and found them booming. I bought eight stands in box hives during fall. I got them packed on top of the combs with a Hill device; and although they were not packed until on or about Jan. 1, they all came out strong. They had nothing over the bees to protect them until I packed them. The more exposed they seemed, the better they wintered.

I fear our shallow frames are bad for wintering. One neighbor had four Dovetailed hives. He left on the empty supers. They also wintered in excellent shape. Now, that is ventilation with a vengeance. I intend to have either double hives or 1½ stories full of bees, and feed hereafter, and I look for success. I don't want any sealed covers in my yard.
Newman, Ill., May 11. BYRON E. SMITH.

THE CRANE SMOKER JUST AS REPRESENTED; THE PORTER BEE-ESCAPE AND COWAN EXTRACTOR.

The new Crane smoker is at hand. In regard to this smoker it is, I believe, all that is claimed for it. That check-valve is perfect; the fire is easily kindled, and it does not have to be filled every time a hive is opened. It fact, it fills a long-felt want. In regard to the Porter bee-escape, I am afraid I was a little hasty. After a further trial, and having extracted nearly one ton of honey, I am very well satisfied with it, and would advise all producers of extracted honey to give it a trial. In regard to the Cowan honey-extractor, if I had another 150 or 200 hives I would increase its capacity by the purchase of another two-frame like the one I now have—that is, if it were necessary; but I believe a two-frame Cowan will extract all the honey that two or three men can bring in day after day. In regard to the solar wax-extractor, here in Louisiana it will extract wax from old black combs as well as any other process, besides doing it much cheaper, cleaner, and with less fussing. I am one of the A B C class; but I do not read the book now; for, as we used to say when we were boys, I know it by heart.
Musson, La., May 15. A. W. TUFTS.

FAX.

Most all the honey I have seen in the market the past season 'pears to be sugared.

Thay'll be lots o' honey-"due" here this year, but, will we git it? that's the pint.

Here's a fax that hain't a fax: *All* bee-keepers, when they sell honey, allus put the onriest-lookin' boxes next to the glass in the shippin'-crates.

I kin slide my hives peart nearly all over the razberry patch tryin' to git that "lateral" motion with the old-fashioned Hoffman frames, 'thout any tin rabbets.

My 'sperience with spindlin' bottom-bars is, that, after a season er two, the bees built down and partly round 'em, plump and square. Sumtimes I like to ketch a frame by the bottom-bar but dislike to dent the komb.

Advice to beginners in the old cattleogs had us Hoosiers down purty safe at $25 proceeds from a single colony; but the new ones, tellin' us not to git extravagant er crazy if we cleered $5 er $10 frum one hive in a single seesin, makes it a little risky. ELLERY KRUM.

B. N.—If the Italyuns was crossed until thair tongues is long nuff to work on red clover, what would become of the poor bumble-bee? I don't want the Italyuns deformed by havin thair bills as long as a Watterberry watch-spring, and the bumble-bees put on sich slim pickin'. I object, and suggest to them persons what aint satersfied with the honey-bee as she is, that it mite be a good plan, when they send 'em out on red clover, to supply each bee with a "Stray Straw" to suck the honey out with. E. K.
Alexandria, Ind.

THE MAPLE-SUGAR PRODUCT OF THE STATE OF OHIO; THE EXHIBIT AT THE WORLD'S FAIR.

From the Chicago *Dispatch* of May 13 we make the following extracts:

One million dollars' worth of maple products are produced annually in Ohio, mostly in the counties known as the Western Reserve. Geauga County leads, with $150,000 annually; Portage County follows, with $100,000, and Ashtabula, Medina, Trumbull, Cuyahoga, Mahoning, Summit, and Logan Counties all make large quantities.

Mr. Thrasher showed a letter from John D. Orr, deputy collector internal revenue, Youngstown, Ohio, which stated: "The average quality of maple sugar sent from Ohio to Washington, D. C., 'to be examined for the two-cent bounty,' tested higher than the average in any other State in the Union." The exhibit consists largely of samples sent in and donated by the farmers from all over the State, about 200 different makers having contributed, and is as good a test of the average production of the State as could well be collected. Logan County especially seemed to outdo herself in the quality of her exhibits. Mr. T. seemed surprised at this, as he said Logan County was considered rather too far south to be in the maple belt.

The east end drew the crowd, for, beside the bottle display above them, hangs from the cornice a large glass pendant filled with the maple syrup, and just below it on a shelf inside an alcove stood a beautiful glass pitcher 32 inches high, filled also with syrup. But this was not all; for down on the counter was arranged on the left an old-fashioned sugar-camp with the log shanty with the coon-skins on the side to dry; the old log fire over which boiled two iron kettles suspended upon crotched sticks. A man with a yoke on his back was gathering the sap from the rough troughs, while a boy was just bringing the oxen up with a load of poles on the long woodshod sled. Many an old man brushed a tear away as he looked at this, and called the attention of his grandchildren to the way he used to do down east when he was a boy.

Sugar in all styles, from the 15-pound cake to the penny cake, is shown; and the impression received by a visitor to the exhibit is that any lover of good, pure maple sugar or syrup would miss a pleasing and instructive sight if he failed to see the Ohio maple exhibit.

The above is certainly to the credit of our State, and we are very glad indeed that the great outside world has now an opportunity of knowing not only how much maple sugar Ohio can make, but how good it is.

A CORRECTION FROM W. W. BLISS; A HINT FOR THOSE INTENDING TO GO TO CALIFORNIA FOR HEALTH.

I have read W. A. Pryal's article, on page 304; and as he has things "sorter" mixed in regard to myself, I wish to correct them. He was here but two or three hours; and as most of that time was spent in driving through the orange-groves of this district, he must have got his "notes" mixed somehow. The land of which he speaks belongs to my brother, and part of it was bought of the party who owned the original Mexican grant, the rest of the tract from the S. P. R. R. Co. There are about 80 acres of the place cleared, some 40 acres of which are set to fruit-trees. Most of the trees are peaches; then come lemon, orange, prune, apricot, plum, pear, etc., in the order named. The future planting will be mostly lemons and peaches.

There are seasons when dark honey (that gathered from sumac, goldenrod, etc.) brings a good price; but I found it useless to attempt to keep bees in a location where the honey is usually dark, one year with another; and should I ever again be so situated that I could follow bee-keeping I should certainly go to some location where the most of the honey gathered is light-colored.

Bees in this locality have done but little so far this season. In one apiary, of some 125 stands, there have been but five swarms, and swarming is usually about over with by this date.

The first eighteen years of my life were filled with sickness. In the winter of 1874 I had congestion of the lungs, and hemorrhage, bleeding about two quarts. In October, 1876, my mother, brother, and myself started for California. Since that time my health has been very good. Let me say to those who have lung trouble, if you ever intend to come to California, come while there is yet hope; do not wait until one foot is in the grave and the bank caving under the other foot, and then expect our climate to give you a new pair of lungs. W. W. BLISS.

Duarte, Cal., May 8.

ANSWERS TO QUESTIONS

FROM BEGINNERS.

W. B. R., of Va., asks us how we prevent the wax from sticking to the Daisy foundation-roller. *Ans.*—See that the roller is clean in the first place. Dip it occasionally in water while in use, and you will have no trouble.

Mrs. S. J. G., of N. J., has 22 colonies of bees, all the increase from one colony that came to her; and she wants to know how she can manage them so as to secure most profit from them. *Ans.*—For our answer to this question we would refer you to the reply to R. F. W., on page 396 of our last issue.

J. W. M., of Mich., has a good many empty hives filled with honey from which bees have died during the past winter. He wants to know if he can hive new swarms on them again this summer. *Ans.*—Yes, sir. Those hives will be as good as any, and the new swarm will very soon sweeten things up if the hive has been befouled with dysentery. But J. W. M. should remember, in the mean time, to keep the entrances closed, otherwise he will have robbing.

W. R. W., of Del., says the bees in one of his hives are running in and out of the entrance, and that he is almost sure they have a queen, although he admits that a queen-cell hatched the other day. The fact of a cell having hatched would indicate that they probably had no queen, or, at least, one that was "playing out." The commotion at the entrance may have been induced by the young queen returning from her wedding-flight. Without seeing the colony itself, we could not give any more definite surmises.

Willie Atchley, a son of Mrs. Jennie Atchley, sends us a drone having a white head. *Ans.*—The drone is a regular "sport." Although the head is white it is of a rather greenish cast. In our A B C book we mention the fact, under the heading "Drones," that very often drones having variously colored heads may be found. These are simply a freak of nature, or, what may more properly be called "sports." This sporting, so far as the variously colored heads are concerned, seems to be confined entirely to drones.

J. W. S., of Ind., says his bees are spotting up the hives pretty badly; bees seem to be weak, and he is inclined to believe they are affected with what is called dysentery. He wants to know what to do. *Ans.*—No doubt the bees have the regular dysentery. The only thing you can do is to let them alone. If you unite a lot of these weak bees they will all die just the same. The only cure we know of is good warm weather. The entrances must be contracted pretty close to prevent robbers from utterly annihilating them.

H. N. J., of N. H., says he has 20 colonies of bees; but as his business calls him away through the swarming season, he wants to know how it would do to put Alley drone-traps on, and catch the would-be runaway swarms. *Ans.*—This can be and has been done, although an attendant, soon after the swarm returns and clusters about the trap, should remove the bees and hive them in a new hive. We should prefer, however, to use the Pratt automatic hiver, as illustrated and described on page 135 of GLEANINGS for Feb. 15.

D. W. B., of Ct., asks whether we know any thing about the "Controllable" hive. *Ans.*—Yes, sir. It is a hive that used to be sold by Mrs. Lizzie Cotton, of West Gorham, Me., at six or eight times the price of hives of the same capacity sold by other manufacturers. It is an improvement over the old box hive, and that is about all that can be said for it. As to its being "controllable," it is no more so—indeed, not as much so—as are hives of to-day sold by reliable dealers. We believe that, of late, Mrs. Cotton has not charged such an enormous price; but she has no success in selling hives among those who are informed in regard to the present developments in bee culture.

H. H. G., of Fla., says that, after the honey season, he has great strong colonies. Desiring to increase, he wants to know the best way to divide them, and how to supply the queenless half with queens the most economically. *Ans.*—After having prepared new hives on separate stands, divide one of the colonies by putting two-thirds of the bees and all the *sealed* brood, with the queen, on the new stand. This will leave the *unsealed* brood on the old stand with one-third of the bees. Most of the bees on the new stand will return, giving the old stand, perhaps, in the end, the larger share. But as the new hive has all the hatching brood, young bees, and the old queen, it will very soon be equal in strength to the old one. After the old queen is removed, the old colony may rear cells from the unsealed brood; but it will be better to give them cells from some choice queen previously made queenless for the purpose. These

cells should be eight or nine days old. If economy is not so much of an object, purchase some good untested queens of some reliable queen-breeder. In August they are as low as they will be—generally about 75 cts. each.

Corbett & Cooper, of N. C., inquire whether we would recommend putting supers on new swarms the first season; also, whether a starter should be put in the bottom of the section as well as at the top. Their bees are in old box hives, because they do not believe they are equal to the task of transferring. *Ans.*—If you are speaking of first swarms, or swarms that are strong, we would say, put the supers on, providing honey seems to be coming in. Starters—that is, narrow ones—may with advantage be fastened to the bottom of the sections as well as at the top. Dr. Miller uses a wide starter at the top, letting it hang down two-thirds of the way. He also fastens a narrow one at the bottom. In this way he finds that the bees, in drawing out the comb, leave a good attachment at both top and bottom—the upper starter, as it were, growing into and uniting with the lower one. As to the difficulty of transferring, that is a small matter providing you follow the Heddon short method as described in the A B C book (which you have), under the head of "Transferring." On page 390 of our last issue will be found another description of the same plan, perhaps better adapted to your situation.

J. R., of Ill., has a colony of bees in a tree in the dooryard. Not desiring to cut the tree, he would like to know how to get the bees out. *Ans.*—This is a rather difficult job. If there is any other hole to the cavity in the tree (in the absence of one, one can be made with an auger), a stream of smoke could be blown in, driving all the bees, including the queen, out at the entrance. Before they can return, plug both holes up, and then hive the bees in a hive near the tree—of course, keeping the old entrance in the tree plugged up for two or three weeks, or until the bees are entirely accustomed to their new location. If it is impracticable to use smoke, place a wire-cloth cone bee-escape over the hole in the tree. Not a bee, as it comes out of the tree, of course, can get back; and if the escape be attached on a warm day, when the bees are flying heavily, there will be quite a little swarm cluster on the outside. These may be hived as first directed; but as you will not be likely to secure the queen, it will be better to put them entirely in a new location a couple of miles away with another queen. Leave them there for two or three weeks, and then put them where you like. Of course, the brood and comb will have to remain.

I. W. C., of Oklahoma, wants to know how to prevent swarming. This is a knotty question, and ordinarily we would refer our questioner to the subject in the text-books; but for the present we might refer him to the Langdon non-swarming system, as described on page 406 of our last issue. This promises much; but possibly it may prove to be a failure when tried by others. One of the old methods, and a good one, has been to remove or cage all the queens, on the eve of the swarming season and during that time. Another method has been to cut out all cells every eight or nine days; but as some cells are liable to be missed, and as bees sometimes—yes, frequently—swarm anyhow, cells or no cells, this method is not reliable. Our plan has been to let the bees swarm, and catch them, either by the Pratt automatic hiver, or in the good old-fashioned way, i. e., putting them in a new hive, placing the same on top of the old one. After the swarming season, we unite the two colonies; but this resulted in not much more than keeping down increase. What we desire to accomplish is, to keep down increase and secure honey at the same time, and we look forward with hope to the Langdon method.

T. T. T., of Ohio, sends us a photograph of his honey-strainer. It is simply an empty extractor-can placed beneath the honey-gate of an ordinary extractor, the top of the can being covered with an ordinary cloth stretched over the rim, and dished a very little in the center. T. T. T. offers to make a contract with us so we can manufacture them under royalty. For the life of us, we do not know what there is to patent about it, although T. T. T. says he has applied for one. We have no doubt that it will answer the purpose for straining honey, but it is an altogether too expensive way of doing it. A far simpler way is, to make a cheese-cloth bag and tie the mouth of it around the honey-gate. Where one is doing considerable extracting there should be several such bags, and the same should be washed out occasionally. These will strain the honey as perfectly as T. T. T.'s elaborate honey-strainer on which he proposes to secure a patent. Such a strainer as T. T. T. proposes to patent has been in use, not only by bee-keepers, but by housewives on washing-days, when they have wanted to strain water by pouring it through cheese-cloth, stretched over the top of a tub. We can scarcely believe that our friend is really serious.

OURSELVES AND OUR NEIGHBORS.

Children, obey your parents in the Lord; for this is right. Honor thy father and mother, which is the first commandment with promise; that it may be well with thee, and thou mayest live long on the earth. And, ye fathers, provoke not your children to wrath, but bring them up in the nurture and admonition of the Lord.—EPH. 6:1—4.

Toward the close of the year 1875—just about eighteen years ago—I first started a department in our journal, headed "Our Homes." My conversion to Christianity took place some months before, and there had been for some time a feeling in my mind that prompted me to take up some line of Christian work, even though it appeared in a journal which at that time was supposed to be devoted to bees and honey. Some of our older readers will remember that the journal was at that time enlarged to make place for these Home Papers. I felt impressed that God was calling me in a certain direction; and although I did not then exactly understand what it was he would have me do. I felt sure he would guide me if I listened carefully and prayerfully to his guiding voice. Looking back through the years, I feel just now more than ever satisfied that it *was* God's call, and that I was right in taking up the subject which I then entitled "Our Homes," as my special field of work. Other things occasionally pressed themselves upon me; and as our intercourse with our fellow-men brings our homes so near the homes of our neighbors, very often these talks to you have been under the head of "Our Neighbors"—sometimes both.

Even now it impresses itself upon my mind that the welfare and perpetuity of our American institutions depend more on the homes and home influences of our land than upon any other one thing. In picking out my text I found nothing in the Bible that seemed to include just the thought that I had in mind so well as the verses given above. Paul first makes an exhortation to the children; and that the home may be secure and safe, he exhorts them to obey their parents. Again, "Honor thy father and

mother." This includes remembering parental ties, even though a new home be started under another roof. What is more beautiful than to see a young couple, just starting in life, honor the father and the mother—yes, the *two* fathers and the *two* mothers? Here comes one of the first tests of loyalty—the husband to the wife and the wife to the husband. As you value your peace of mind, and the peace of mind of your dear companion in life, let me entreat you, dear reader, to be very tender and kind to the father-in-law and to the mother-in-law. Then Paul addresses the fathers: "Provoke not your children to wrath; but bring them up in the nurture and admonition of the Lord." From this we gather that such earnest, faithful words were needed by the Ephesians, long ago, just as they are needed now. Perhaps I should say here, that this whole subject was brought vividly to my mind by a home sermon from our good pastor, Rev. J. R. Nichols, of this place; and I have his permission to use some of his ideas and illustrations in this talk to-day, before I close. First, however, I want to take up seriously and soberly the subject that was diverted into pleasantry a few months ago. Even though some of the friends were inclined to poke fun at me, I am sure that, in their inmost hearts, they said, "Yes, Mr. Root is right, and his exhortations are sound and true." There never *can* be too *many* homes in our land; and there will always be danger when any individual—man, woman, or child—has *no* home. If a child loses its parents, one or both, a home should be provided for it. It seems that, through God's wisdom, there are necessarily some homes where the parents have no children of their own. Let such look after the orphan children of their neighborhood. Every grown-up *man* and *woman* should have a home. A pleasant, attractive, comfortable home is the best safeguard the world has ever given or can give against vice. It is one of the best stepping-stones to a godly and Christian life. While I do not think it needful to advise that young people should be in haste to marry, say while in their teens, I do believe great good would come, and that much misery and perhaps crime might be prevented if marriage were to follow pretty soon after emerging from the teens. The laws of our land have placed the majority pretty near this point, as you may notice. The boy is supposed to be a man when he is 21, and a girl is a woman at 18. When there are good reasons for postponing the marriage for a little time—say for finishing an education, or something of that sort—it may be well to wait a little; but my opinion is, that dangers often come in, as a consequence of delay. God said, "It is not good that man should be alone," and I think we all suffer loss, more or less, when we neglect or forget this great truth which seems to be so much a part of our being. The first step toward establishing a home is in choosing a partner for life. Quite a few have asked me—some perhaps seriously, and some in pleasantry—whether my advice was to be taken by women as well as men. I have not space to go into this subject right here; but I can answer this much: I do think that many women remain single because they demand *too much*. I do not mean by this that a good woman should bind herself for life to a vicious or bad man. But I do think she would be far better off as the companion of some man, if he is *honest* and *true*, even if he has not the brilliancy and talents that some men have. Many of our *best* men never gave much indication of what they were going to be when they were 20 or 25 years old; and I think I may add that *thousands* upon *thousands* would *never* have proved themselves benefactors to the race as they have done had it not been for the help and encouragement of the wife of their youth. Look about you and see. Had they never been *married* they would never have been *great;* and I believe this is true of women also, to a certain extent. I am almost ready to say that a good man has no business being a single man after he is 25 or 30. It looks bad, and it *is* bad. It is one evidence that he is *not* as good a man as he *might* be. You may take exceptions to what I am saying now; but I feel sure that I am right. There can be no real home without a wife. Now, pardon me when I say, neither can there be any *perfect* home—such a one as God intended to be a reflection of *heaven* here upon *earth*—until the home is lightened and brightened by the prattle of children. Of course, as I have said, there are cases where it seems to be God's will there should be no children of your own. In that case it is your privilege to furnish a home and be father and mother to some of the homeless and motherless little ones. "Inasmuch as ye have done it unto one of the least of these (little ones), ye have done it unto me." Take a little homeless wanderer, that seems to be adrift in the world; and while you minister to its physical, mental, and spiritual wants, remember the promise that it is your privilege, in so doing, to minister to the Savior himself. Now for the home relations.

One reason why I felt in those years gone by that God called me to talk and plead in this direction of Our Homes, was because of the wonderful transforming power that the Holy Spirit made in our own home. Please do not understand me as conveying the impression that my home was an unpleasant one. God forbid! It *was* a pleasant one. It was a little paradise here upon earth; but I did not *know* it nor *see* it nor *appreciate* it till the Holy Spirit opened my eyes. An intemperate man once attended a series of revival meetings. Although he did not come out very strong for Christ Jesus, he said to me one morning something like this:

"Mr. Root, I do not know that I understand exactly what conversion is; but it seems to me I am getting a glimpse of it. When I go home nowadays I look at my wife and children with a new feeling that I never had before. I did not realize before what a good wife it has been my fortune to be with all these long years. I did not appreciate my children as I do now. Under the influence of this new life, every thing looks brighter and better; and I am filled with thanksgiving and joy that God has given me so much to be thankful for." This friend had got it exactly. When the Holy Spirit opens up and illuminates the heart, the recipient sees new beauties, new joys, and new causes for thanksgiving and praise that he never saw before. I hardly need tell you that skepticism and unbelief furnish nothing of this sort. There is a kind of skepticism, that perhaps there is no particular name for, that prompts one to think he does not have a fair chance in this world—that his children are not such as he has a right to expect, and the dear wife is not as *good* a one as he ought to have; in fact, that he is a great deal too good for the company God has—stop! stop! Such a man does not think about *God* at all. It is Satan, the old enemy of mankind himself, who is constantly making a man dissatisfied, and who is trying to get him to grumble and complain. When you take *God* into your home, his influence ennobles every thing. I do not mean that it blinds your eyes to the imperfections of others, or that it would induce you to relax your energies in setting to rights things that are wrong. On the contrary, the Holy Spirit is a constant stimulus to that which is better in *every* direction. It opens up to you a thousand ways in which you can make your wife and children not only happier and better,

but it helps *you* to help *them* to better things. And this holy influence is always contagious. It gets hold of the dear wife, and the little one that is scarcely able to walk or talk. It enables them to see better things in the dear papa, and to feel thankful for the father and protector that God has given.

Satan is opposed to homes, on general principles. He prevents people from getting *married*,* if he can, and then he breaks up homes and married life, if he possibly can do it. He who starts a home or builds a home must reckon on finding this great adversary putting in his work just as soon as the home begins to prosper. The principal point I wish to make in this talk is to the effect that we who constitute the home may constantly watch for this insidious foe, and keep him out. Since so much has been said about the conflict that never seems to be quite ended, about opening the World's Fair on Sunday, that old familiar text of childhood has been ringing in my ears—"Remember the Sabbath day, to keep it holy;" and it was yesterday, or the day before, that the ringing began to take a little different form, and it was something like this: "Remember the 'home,' to keep it holy." Sometimes it would be, "Remember the *marriage-vow*, to keep it holy." Again, "Remember the family ties, to keep *them* holy." O dear reader! do you fully realize how much depends on carefully guarding and watching over *your* home? Do you realize how it is that the perpetuity of our land of liberty depends upon how well and faithfully you guard it? The elements of secession and anarchy, crime and ruin, are sown and fostered and nourished—no, not in somebody's home, but in some place that has been perverted from what ought to have been a home. Only yesterday some fiend in human shape, or, worse still, a conspiracy of fiends in human shape, blew up and wrecked three different homes, with dynamite. These homes contained women and children. They were godly homes. Do you ask what caused it? Why, the fathers were godly men. They tried to enforce the law, or did enforce it, against saloons and the saloon business in the city of Muscatine, Ia.; and the murderous revenge was to blow them all up with dynamite. The fiends were going to teach the citizens of the United States of America that the venders of liquor were not to be *trifled* with. Perhaps they meant to say by this, "We will teach you to mind your own business, and let us alone, even if we *are* plainly violating both the spirit and the letter of the laws of the State of Iowa." My impression is, that these three fathers and the good people of Muscatine are not going to be "teached" worth a cent, by such measures. May God grant that the mass meeting that was instantly called to devise ways and means for hunting up the criminals may be successful. Let us all pray for that, and work when opportunity offers.

Our pastor told us in that sermon, that the minds of these little ones growing up around the hearthstone are like the sensitive plates used by photographers. You know they have them now so exceedingly sensitive that an impression is made in a fraction of a second. Instantaneous views are taken so quickly that a horse on the run is photographed as if he were standing still. Well, these little friends of ours—these buds of humanity—are sensitive plates. They catch impressions, and hold them. You can tell what sort of parents a girl has by watching her as she plays with her doll. If she scolds it and boxes its ears, she has probably had some experience herself in that very line. If she threatens to cut off its ears if it does not do so and so, it is because somebody has said the same thing in her hearing. Therefore, how great is the importance of being careful what we say or do! When the Holy Spirit came into our home, it made me gentle and kind, especially to my life partner. Next to the great God above should be the life companion who helps us to *make* our home. As the parents speak to each other, so will the children speak. Now, I have not only known this, but I have taught these things through Our Homes for many a long year; and of late I did not suppose it possible that any thing, even Satan with all his subtilties, could throw me off my guard. Alas for humanity! It is not many days since some trifling event occurred where my good wife and I happened to take different sides in the matter. It was just before supper. I was suffering somewhat from nervous exhaustion, and was in no frame of mind to talk, much less to discuss any thing. At such times I have for years, knowing this, kept still. A cup of milk stood by my plate. Had I taken a few swallows, and waited only a little time, I might have been in a fit frame of mind to talk. It is my disposition to push ahead, and I foolishly pushed ahead even then, when wisdom bade me not. It was not so much what I said, but my face was flushed. I was sorry in an instant. I would have apologized then, but I was not in a fit frame of mind to apologize. When we knelt by our bedside at night, however, I asked my companion's forgiveness, and I asked God to forgive me. But even after the forgiveness had been granted, I would have given a good deal if those few words I uttered had been unsaid. Our children heard them; and the fact that at least two of them were pretty well grown up made me feel all the sadder about it. At breakfast time I asked their forgiveness also. But there has been a feeling ever since, that I must have suffered in their estimation by that brief, instantaneous photograph of a deformity in my character. They may have had glimpses of said deformity years ago, and may have forgotten that it existed. Oh how glad I should be if it were possible to have *all* my friends forget, and forget *myself*, that Satan *still* has a hold upon me! It rankles in my heart to think that he may, at any unexpected moment, get a clutch on me again. Lord, help! If *parents* seem to decide that it is right and proper to speak harsh, unkind things to each other, what in the world is to hinder the *children* from learning to think that it is proper and right for *them* to be harsh and severe?

It is the parent's duty, not only to look out about the *example* he sets before the children, but to look after the children. The parent is the God-appointed guardian. Our pastor said you might as well expect a child to grow up right when you let it have its own way, as to expect a locomotive would keep the track and

*There is a paper published in a certain part of the State of New York that comes out boldly and unblushingly, and says in every issue something like this: "Pay no taxes; pay no rent; pay no interest to anybody; *do not get married*," etc. This vile sheet does not mean that we should live a life of celibacy—oh no! If you read a little of its pages you will find that it unblushingly recommends to everybody—"just help yourself." It just now occurs to me that the Devil himself is at the head of at least *one* newspaper in the United States. We might have been sure, on general principles, that he *would* start a newspaper if there could be found enough people to take it; and the fact that it is already running, indicates that it has not only found support but that the P. O. Department permits it. Anthony Comstock has already had the editor in jail, it seems, for said editor goes on about it in this issue that happened to fall into my hands. He is loud and bitter toward Uncle Samuel also, because Uncle Sam has had the effrontery to open the mails and decide what is too obscene to be permitted inside of the mail-bags. Well, this man comes right square out, and says, "Do not get married." Is it at all surprising?

do service if you pulled wide the throttle-valve and took the engineer from his post. The locomotive would go crashing through the land, bringing wreck and ruin, and, possibly, devastation and death. But the havoc that the locomotive might make would be mild in comparison to the average child that has its own way, and is entirely without restraint. This is a terrible statement; but I am afraid it is true. And there are children in our land who are growing up in that very way. If they have any property, the law appoints a guardian: but a child-tramp, going here and there hunting up a job, may have no guardian whatever, unless some good man or woman takes pity on him, and tries to be a guardian to him. A parent who is harsh and severe, and overdoes the matter in the way of exercising authority, is better and safer than the one who gives his child unlimited liberty and lets it do exactly as it pleases. Better any sort of restraint rather than no restraint at all. But this is no excuse for letting our lower impulses lead us to be unjust to children. "Ye fathers, provoke not your children to wrath."

A father came home from his work at night, tired and hungry, and perhaps feeling fretful and impatient. A bright new saw lay on the ground near the gate. The father meditated, "That boy is getting to be heedless and careless. He needs a good thorough straightening-up." As the boy came in sight the father commenced:

"John, pick up that saw and put it in its place. Haven't I talked to you enough about leaving tools lying around on the ground?"

"But, father—"

"Not a word, sir; do as I tell you."

The boy once more attempted to say something in his defense; but the father's anger had been rising, and he cut the boy short by saying, "Not a word, I tell you. Go upstairs and go to bed, and learn after this not to answer back when I reprimand you."

The boy was a chip of the old block, as a matter of course, and by this time *his* temper rose also. With the hot tears of anger coursing down his cheeks, he did as his father bade him, slamming his door as he threw himself on his bed, sobbing, and stung to the very core at his father's injustice. The father began to feel, too, after the boy was out of sight, that perhaps he had been more severe than the occasion demanded. A neighbor, who was at some little distance, heard the whole matter, and had by this time reached the spot. He was also somewhat excited, but he undertook to reprove his neighbor.

"Look here, Mr. Jones; you are making a mistake. If you look a little closer you will see that *that* saw is not yours at all, and your boy had nothing to do with it. A man left it there and is coming back after it presently."

What did the father do? Well, I suppose that, like you and me, he hated to own up that he had been wrong and foolish; so he tried to laugh it off, and replied, "Well, perhaps you are right about it; but if the boy did not need it *this* time, he will before long; and it will not do him very much harm if he did get his punishment a little in advance."

Because the father was ashamed to own up before his boy that he had made a mistake, and had been unmanly and cruel, he let the boy lie there on his bed, with his heart in just the right state to receive almost any prompting that Satan might whisper.

As our pastor told this story it almost made me start in my seat. I do not think I ever did any thing so unreasonable and cruel as the above; but different phases of the picture came home to me and rebuked me. Dear brother or sister, can it be possible that this little incident is a picture of the things that do sometimes happen in or about your own home? If so, may God help you. I know it takes hard earnest work and earnest prayer to keep yourself free from such mistakes and shortcomings as these; but "there is no great excellence without great labor." It is the price of wisdom. Daily prayer, night and morning, that you may be kept from such thoughtless sinfulness is not enough. You need to pray every hour; and when conscience whispers that danger is near, you need the little prayer, right on the instant, "Lord, help!" When the warning note is ringing in our ears, if we can stop long enough to utter mentally even those two short words, we are comparatively safe.

I am reminded right here of a little incident in the great business world. It was told in the *American Florist;* and I fear, too, that it was told by an editor who has little or no faith in prayer. Last spring, when there threatened to be a panic, owing to the scarcity of onion seed, some men of large capital undertook to buy up the visible supply in order to make a "corner." They found a seed-merchant in San Francisco who did not happen to be posted in regard to the market, and they had so nearly succeeded in buying his complete stock at some thousands of dollars less than its real value, that the money was already taken out and ready to be counted. He had not accepted their offer, and, to their great surprise, he said, "Gentlemen, before I conclude this bargain you will please excuse me for a very few minutes." He came back and declined to sell his stock of seed. They increased the offer, but he would not sell, even then. They were surprised at the strange behavior of a smart and capable business man, and employed a mutual friend to get an explanation as to why he changed so suddenly. The explanation was this: He retired to his private room, and asked God to direct him that he might not be a victim of any evil plan of those men. The result was, that he was impressed to make no deal with them whatever. I may not have got the above exactly as it occurred, but it was essentially as I state. The matter attracted my attention, and the editor of the *American Florist* gave us some further facts afterward. There seemed to be a chain of circumstances reaching out a good ways in different directions, hinging on this one deal; and the very men who were at first disappointed in not getting the seed, said afterward that the delay occasioned by the time our Christian friend was occupied in praying over the transaction, was a Godsend to *them*. Events afterward transpired, showing that his fashion of praying over important business matters, before committing himself fully, saved a good many people from losses, as well as the parties mentioned. The editor explains it by saying that it all came about by this trifling "hitch" in the business that was going on. Now, friends, you and I would have been better off in peace of mind, and perhaps money too, had there been some little providential "hitch" in our affairs just as Satan was getting us well under his thumb. And the way to bring about such a hitch is to stop long enough to ask God's help before you push ahead in any crisis. Especially do we need this little prayer in home matters; for it is not only true that "the hand that rocks the cradle is the hand that moves the world," but it is true that God's kingdom is to come here on earth, and his will is to be done here in this nation of ours, by the work that commences in a still and quiet way around the hearthstone, and in these homes of ours. May God's blessing and love and peace find a resting-place in these homes.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

PUTTING UP CANNED FRUITS AND VEGETABLES FOR MARKET.

HOW FAR IS IT PRACTICABLE FOR MARKET-GARDENERS AND BERRY-GROWERS TO PUT UP THEIR OWN SURPLUS?

So many have written, making inquiries in regard to this matter, I have decided to tell you what I know about it. One great obstacle in the way is, that it puts "too many irons in the fire" for the average gardener or fruit-grower. He may be a man of such ability that he could do very well as fruit-grower, as market-gardener, or as a canner, if he were to undertake either one of the three alone; whereas, if he should undertake to do two, or, worse still, three of them, at once, his energies and abilities would be so divided that one and may be all three would suffer. You know friend Terry's great point has been in attempting one thing, and in doing that one thing well. Mr. Terry is a farmer; but he has chosen, as his branch of farming, the growing of potatoes only. Of course, he grows clover and wheat also, but they are only secondary. Now, in order that he may have full swing on potatoes, and nothing to divert his interest and attention, and the same of his hired help, he has discarded even pigs and chickens, and, for the most part, the family garden; and he succeeds, and is not cramped or worried in succeeding. If you undertake to can your surplus to keep it from spoiling, you will likely be cramped or worried, and wish you had never thought of it. If, however, you have a grown-up family that would like to help, and stay around home, or near the old homestead, then it may be well to undertake it. Friend Cummins has four boys, all grown-up men, and I should say they are all of rather unusual ability. But even with all this help and unusual facilities he does very little in the way of raising his own tomatoes or corn or pumpkins, if I am correct. He grows tomato-*plants*, but he does it mainly that he may have nice plants, the right variety, and no *mistakes*, and have them at just the right time. Then he depends upon the farming community to furnish the product to run his canning-factory.

Well, let us see what we can do. Perhaps you raise tomatoes for market. Tomatoes have a good many ups and downs. They are liable to be worth a dollar a bushel, or more; and, again, they are liable, on very short notice, to be so plentiful that you had better take 20 cts. a bushel for them than to let them rot on the ground. If you push your whole product on the market, and try to force sales, you not only damage yourself, but your neighbors. In fact, we often keep the market up to 50 or 75 cts. by telling our customers that, if we can not get that price, we shall take them home and can them.

I need not stop to tell you any thing about canning them for home use in glass jars. We put up a good many that way every year, for our lunch-room. Sometimes we sell them around town. Where we want to save a lot of tomatoes from spoiling, or from glutting the market, two-quart cans are cheaper than any smaller size. The only trouble is, a small family may not be able to use up a two-quart can before it spoils, after opening; so if you are going to use glass cans, better have part of them one-quart to accommodate. Tomatoes in glass, if properly put up, should keep any number of years. The trouble is, a good many people can not be made to do it right. Many a good housewife, however, can tell you all about it; but somebody must superintend it who is interested. The average hired help will not take the pains necessary to make a sure thing of having every can keep.

Now, then, if you have too many tomatoes to put into glass, you will want to put them in regular standard tin cans so they can compete in the market with the product of the great canning-factories. As a rule, I do not believe you can do it to pay unless you put up a factory, and do it on a large scale. The trouble is, two-pound cans of tomatoes are often sold at from 90 cts. to $1.00 a dozen. This would be 7 or 8 cts. each. The average tinsmith will charge you 4 cts. each for your cans; and you can not put in the tomatoes, and solder them up, for much less than 4 cts. more. You can try it if you want to; but I think you will "get left." If tomatoes are selling, as they are doing just now, at $1.25 a dozen, so that you get 10 cts. or more per can, you can very likely do it, especially if you have a family of children who want something to do. Girls and boys work nicely together at this sort of work.

The first thing is to get the cans. You can buy tops and bottoms by the barrel for about 1½ cts. per can. The piece of tin for the body, and the work in making up the can, will cost you about as much more; so you can not very well make the cans for less than 3 cts.; and unless you make a good many of them they will cost you 4 and *may be* 5. Now, here comes an illustration of just what I want to teach. There are great factories that will make cans by the carload, all complete, for about *2 1-2 cts. each*, or as low as *you* can buy the materials, to say nothing of the work. Friend Cummins has some of the nicest automatic machinery in the world, the result of years of study and labor, and much expense; but he told me these factories for making cans had worked the thing down so fine that, if it were not for the freight on such bulky goods, he would stop trying to make his own cans, letting all his expensive machinery lie idle, and buy them by the carload. One other advantage in making his own is this: He can always be sure of having cans ready when favorable weather gives a great crop of tomatoes. Waiting for a carload, or for a train of cars loaded with cans, during the height of the season, would be rather bad business for a canning-factory. So you see there are several things to consider. Perhaps I might say, for the encouragement of those who would really like to make their own cans, that there is quite a room for enterprise and skill in this matter. I have mentioned to you the incident of can-making in California, when they had a large shipment of honey to go to England, to put up in tins. Friend Wilkin hired the best tinsmiths he could find, and the most expert men in soldering cans; but his own son-in-law, J. F. McIntyre, at that time but a boy, after a few days' practice and intelligent study of the whole matter, put up more cans, and did them well, than any old tinner they could get hold of. I do not know but our young friend had his eye on the boss's nice-looking smart daughter at about that time. Such things are *sometimes* a powerful incentive; and it is all right *too*.

Now about putting up the fruit. I do not know very much about the way canning-factories work. Circumstances, perhaps, must decide something in regard to this matter. Two years ago we put up about 3000 cans of tomatoes. Most of them we raised; but when great "beauties" (they were Livingston's Beauty) were offered in market for only 20 cts. a bushel, we decided to buy them and can them. Had it not been for the advance in canned tomatoes this spring, I do not know how we should have

got our money back that we put into them. Never mind. We took the fruit down into our wax-room, where we make foundation. One of the large wooden vats was filled with water, which was set to boiling by means of a steam-pipe. The tomatoes were then put into baskets made of poultry-netting. These were dipped into the boiling water just long enough to make them peel nicely. Then the women-folks peeled them, took out the seeds, and filled the tin cans plump full of solid meat. This being done, one of our tinners soldered on the caps. Before doing this, a small hole was pricked in the cap with an awl. This is to let out the steam. The cans were then put into the wired baskets again, say a dozen in a basket, and lowered into the vat of boiling water. When they had boiled long enough so the entire contents of the can were boiling hot (say 10 minutes), thus expelling every bit of air from the can, they were lifted out and a drop of solder was quickly put on the vent-hole, with a soldering-iron and again boiled for about an hour.* After they were cold they were ready to be packed away. You should put them where they will not freeze, and at the same time where there is not dampness enough to rust the tin. We just lost thirty or forty dollars by storing our cans in a damp cellar. Friend Cummins has his stacked up from floor to ceiling, right close around the hot-air furnace that warms his spacious dwelling-house in which he lives. The furnace, of course, is located right on the ground in the cellar. I think there was a cement bottom to the cellar. But this whole basement was as dry as a chip during some of the dampest and wettest weather we had last spring.

The process of canning corn is somewhat different. I believe it is boiled a good deal longer; in fact, this second boiling is something like two or three hours. Some factories, I am told, put in some sort of chemical to keep the corn from spoiling; but I am told nothing of this kind is needed if the work is done right. It just now occurs to me, that, as a rule, the owners of canning-factories are not usually disposed to give away their secrets and tricks of trade; and this is all right, for it is their privilege to keep their business to themselves if they think proper. I do not suppose anybody would object to what I have given away, for it is mostly pretty well known already.

Very likely many of you can save your tomatoes, and perhaps small fruits, in a way that you can get your money back, if you sell your stock at *retail*. Put up a good article; make your reputation for it; put your name on the can, and then take your product around and sell it at retail. We have canned goods on our market-wagon every day in the year. I would not put labels on until ready to sell the goods; then they will be nice and clean. You can buy lithographed labels for tomatoes, corn, and many small fruits, of the label companies. They are just right for the cans, printed in bright waterproof colors, representing fine specimens of the contents of the can. There is a blank space left for your name and address, that can be put on at any printing-office. Labels for 2-lb. cans cost about $2.00 per 1000.

Now, if any of the friends who have had experience in this matter of canning — that is, canning for the markets—in tin, have a mind to give us any hints, we shall be glad to hear from them. The great factories have what they call process kettles, and other arrangements, so the filled cans may be heated up by running a small carload right into a large steam-tight iron box, where steam is let in so as to do all the heating and cooking under steam-pressure. There is considerable lifting connected with canning, especially where it is done on a large scale, and we want to manage so as to have no useless movements, or lugging stuff around needlessly. Arrange your whole plant so that a wagonload of tomatoes may be brought as near as possible where it is wanted; then move on trucks, wheelbarrow, or some equivalent, your product right along until it is dropped in its finished state at some other place, where it can be easily loaded on to a wagon. Arrange things so as to spare the women-folks all kinds of fatiguing lifting. Have convenient tables made to work on, and clean up all the refuse every night. Take it out on to the ground, and plow it under; and the peelings will be worth, for some crops, almost as much as manure. You can make the juice into ketchup, and put it up in fruit-jars or bottles. If you make a good brand of ketchup it ought to pay as well as or better than the tomatoes. If you have more juice than you can use for ketchup, give it to the pigs to drink. If you have no pigs, may be you had better borrow some. If your tomatoes are carefully grown from seed purchased from some reliable firm, of some of the standard sorts, you can save the seeds and get quite a good sum of money for them, providing—what do you suppose I am going to say now?—*providing* your *reputation* is so well established that a good seedsman can readily find out whether or not it will be safe to buy your seeds. Seedsmen are very careful and cautious, and they *ought* to be. You know how I got my fingers burned by buying Ignotum seeds. Of course, I expected to buy only of those who had received free packets of seeds from ourselves; but in some way or other some other kinds of seeds—perhaps not more than an ounce or two—got into the lot; and before I knew it a dozen or more friends had been wasting their time in raising something they did not want, and something that was not Ignotum at all. Here is an illustration of the value of a good name and of a good reputation. Where there are a dozen people from whom I should be willing to purchase seeds, feeling sure there would not be any blunder about it, there are *hundreds* of people—yes, good people too, of whom I should be *afraid* to buy. They might mean well, but I should be afraid of their heedless habits and careless way of doing things.

* I almost forgot to say that green hands will be pretty sure to make more or less leaky cans. Now, the test of leakage comes in right here: After the vent-hole is soldered up, just as soon as the can is put into boiling water, and begins to get hot, bubbles of air will be seen issuing from the leak, and this indicates that the can must be fished out and the leak soldered up. Another thing, after the cans are put away, if the work has not been properly done some of them will begin to swell and bulge out. This indicates that fermentation is going on inside. If the cans are sorted out just as they begin to bulge, the contents, frequently, may be used at once on the table; or, if you want to take the trouble, they may be canned over again.

WEEDS, SMALL BOYS, ETC.

As a rule, very few boys like to weed the onion-beds, nor any other plant-beds, for that matter. Now, I think the nicest work in the world, especially after a shower, when the weeds come out nicely, is this same work of weeding. I like it because it does me good to see the plants boom when the thievish weeds are taken out of their way so as to give them elbow room, and at the same time stop them from stealing the rich plant-food that belongs to the plants. The boys as a rule, however, have little sympathy with me in the matter. A boy will wheel sand or unload a car of tile, and he will work, while doing it, like a young

beaver. Sometimes by his quick movements he will for a time do almost as much as a man—yes, even if he has only a third of a man's pay. Of course, you can not expect him to work as many hours on a stretch as a man does; but if you understand a boy, and boy nature, you can do the boy good and he will do you good. Let us now go back to the weeding.

At first, when certain boys began to loaf, and loll out their tongues, or tell stories when I set them to weeding, I reprimanded them, and made up my mind they were not very *good* boys; but when my very best boys began to get this sort of "disease" whenever they were asked to weed the beds, I began to think that, perhaps, there was something about the work that we ought not to expect the average boy to like. Sometimes when they want work badly they will go to work at the weeding with a very good grace; but by and by they lose interest and enthusiam, and get the same fashion they see others around them following. One little fellow frankly admitted that he did not *like* weeding; but he said that, when there was no other work to do, he would do the best he could at it.

Well, I finally began to wonder if there were not some way to get rid of weeding. You may say, "Why, yes; have rich soil in your plant-beds that does not contain weed seeds." But, alas! if you use large quantities of stable manure, it is impossible to avoid getting clover seed and grass, and ever so many other kinds of less useful weeds. By the way, did you ever see what a wonderful propensity a clover-plant has to send its roots down in good soil? On our plant-beds a little clover-plant, with only three or four leaves, and not over an inch high, will have a branching root almost as long as your hand. Its first business seems to be to get away down where it can pump up the moisture and fertility. Well, since I have been using the sand I have got hold of a plan which comes pretty near being a remedy for weed-pulling. Fix the bed as I have been telling you, and then put half an inch of sand all over the surface. Sow your seed in the sand, or just about between the sand and soil, and most of the seeds will be up before the weeds are. There are no weed-seeds in my lake sand at all; therefore the weeds have to get up through the sand before they are visible. The seed does not have to send up its shoot so far, and therefore it gets a little ahead. However, by the time your plants begin to put out their second leaves, the weeds will begin to get up through. It is best to let the weeds and plants grow all together until the plants are large enough to transplant safely; then pick out the plants and leave the weeds. These same boys who dislike picking out the weeds will take up the plants and plant them out in nice rows, and give you a perfect stand of plants—that is, after they have been trained a little. This transplanting with poultry-netting frames, or even with the notched strips of wood shown in the tomato book, makes the work a regular mechanical operation; and when it is done it looks handsome and workmanlike. After the plants are all out, dig the beds all up and then run the weeds, dirt and all, through the sifting-machine shown in the tomato book, and your weeds are all shaken out of the dirt, and underneath the fine soil, where they are worth as much, on a small scale, as Terry's clover that he turns under; then put on some more sand, and sow more seeds, or put in plants. When the plants get big enough to shade the ground, all trouble from weeds is virtually at an end. If a few do get through, they can be easily "yanked" out.

You may say this is a great deal of trouble and expense, making up the beds so often. Yes, it is; but it is a great deal cheaper than weeding. And what do you suppose we get for the use of a piece of ground, during this busy month of May? Well, we often sell nice seedlings for 20 cts. per 100; for onion-plants we get only half as much; but I have frequently taken three or four dollars for the plants occupying the space of a single sash for 30 days; yes, sometimes with favorable conditions I have, in 15 days after transplanting Wakefield cabbages, taken up every plant and shipped them off, getting two or three dollars for the plants that grew under a single sash in only 15 days' time. To get these prices, our plants must be nice ones. I do not mean that they must have nice-looking *tops*. Good gardeners care a good deal more about a big bushy *root* than they do about a fine-looking top. A great big rank green top, with almost no root at all, is of little value. If you make it grow it will be a long while before it amounts to much. Some time in April we had some tomato-plants in our greenhouse, once transplanted, that were beginning to crowd so I knew they must have more room somewhere. I moved them out into a plant-bed to be covered with sash, and gave them plenty of room. The weather was so cold, however, and there was so little sunshine, that they almost stood still for pretty nearly a whole month. The foliage had very much changed in color, it is true, and it lost its light bright green look, and had assumed a dark, tough-looking hue. It looked as if they would stand frost, and I guess they would have stood a light frost without injury. I thought likely they were making root at this time; but when I came to take some up for a customer, I was greatly surprised to see a great mass of bushy roots, about the shape and size of one's double fist. The little plants at the top looked almost insignificant; but the roots were new and thrifty-looking. Such a plant would almost grow if you were to throw it out on top of the ground; and with the most indifferent planting it would take right hold and boom at the first bit of sunshine in summer weather. Such plants will build up a man's trade; but long spindling plants, with all top and little root, will disgust a prudent gardener. This desirable result is secured by frequent transplanting. When orders are rushing we can not well get just what we want for customers; besides, if we do not get a purchaser at about the right time, the doubly transplanted plants will be getting too big to send away. But I tell you, there is a chance for somebody to build up a big trade in furnishing nice plants every time. With such a greenhouse as ours, with sufficient capacity, and plant beds and sash to match, it could be done, even with such a spring as we just passed; and by frequent transplanting we can get rid of weeding; and I do believe it is *cheaper* to transplant the whole bed, many times, than to pull the weeds out.

Some of you may say, "Why, look here, Mr. Root, these chemical fertilizers you despise are going to help you out in the matter. Get some good soil that has not been seeded to weeds; mix it with your lake-shore sand, and then enrich it with guano or chemical fertilizers, and then you won't have any clover or grass seed, nor any thing else, to bother it; and for plant-beds it would surely pay instead of using such quantities of stable manure." Well, perhaps it may. I hope so; but if it is guano that gives the chemical manures their value, I say guano should have the credit; and it should be our privilege to buy guano without the other. I should like to see chemicals like nitrate of soda produce a crop on ground that is too poor to give any crop otherwise. I have some faith in bone-dust; but that, too, is rather expensive compared with stable manure at 50 or 75 cts. a load—the price we pay here in Medina.

THOSE UNDERDRAINS, ONCE MORE.

On the 15th of May it began to rain steadily at 5 o'clock in the afternoon, and I am told that it did not stop a "minute" for between 50 and 60 hours. It did not rain very hard any of the time—that is, not as hard as it did a year ago; but there was more or less water falling all the time. My heart went down as I saw our cultivated fields getting more or less saturated, and settling down like a brick. Our creek bottom was flooded, and our strawberries were under water, more or less of them, for over 48 hours; but they seem to have stood it pretty well. It was a comfort to me to watch the underdrains as they steadily poured out their surplus. The quantity of water was not sufficient to wash out the fertility, as it did a year ago, and the ground is drying up faster. I was wondering how friend Terry managed to get in his potatoes, and have every thing exactly right, as he so strongly urges. I guess he is having a little trouble too, for he says, in one of his letters:

> We are having a terrible rain. It would be harder to carry Huber across my *potato-field* to day than it was in the swamp. T. B. TERRY.
> Hudson, O., May 17.

Our plant-beds come in quite beautifully just now. The paths are all from four to eight inches below the surface of the soil in the beds, and so we have the most complete underdrainage and overdrainage. But I suspect it saps the fertility of the soil to be leached so continuously. Our onions that were started under glass just seem to laugh at so much rain. The temperature, too, was low, hardly varying from 45 to 50 degrees; but notwithstanding this, the onions made about the biggest growth in 48 hours I ever noticed. Tomatoes, and all tender vegetation, just about stood still—that is, the tops did; but I rather think they were making roots some. But many of the hardy plants, especially those that love great quantities of water, made a wonderful growth—such as asparagus, rhubarb, onions, and some of the most robust varieties of strawberries.

THE GOVERNMENT AND THE LIQUOR BUSINESS.

IS OUR GOVERNMENT A PARTNER IN IT? ARE WE IN DANGER OF BEING DISLOYAL TO OUR GOVERNMENT?

[After writing as I have in regard to the course our government is taking in the matter of spirituous liquors, I rather expected somebody would supply some missing facts in the case that I had not yet got hold of. I was disappointed, however, in receiving nothing, or next to nothing, in defense of the government. Quite a few letters came, it is true, saying I had not told half the truth, and I began to feel that things were certainly getting desperately bad, or else nobody who reads GLEANINGS, who knew, cared to set us right. Recently, however, I have received a very kind letter from one who not only loves temperance, but who loves Christ Jesus, as you may gather from his closing sentences; and even though he has not told us all the truth, I feel like saying, may God be praised that so much can be truthfully said in defense of our government, and in pointing out more clearly the difficulties it has to encounter. Permit me to say that I never meant to be disloyal, or to do or say any thing that might savor of rebellion against our free institutions. I want to straighten up and build up, rather than to tear down. Here is the letter:]

On page 222 of GLEANINGS we find some severe comments by the editor on the relation of the United States government to distillers; and on page 296 G. M. Doolittle has also something to say on the same subject. Both of those writers condemn in severe terms the course the government has taken in regard to distilleries.

Mr. Root maintains that "government distilleries are out of Uncle Samuel's line of business," and Mr. Doolittle asserts that the government has entered into a bargain with the whisky interests, by which, for funds furnished, it would give a mortgage on its boys, and in very strong terms maintains that this "Christian government has nationalized the drink business and inaugurated a system of partnership with the accursed liquor-traffic."

Now, I have no desire to cross swords with two such notable men as A. I. Root and G. M. Doolittle for the sake of controversy; but I submit that it's a very serious thing to impute evil intent to the government, and the laws under which we live. No good can come from such intemperate language. The facts in the case do not warrant it. It is one thing to condemn the government for the course it has seen fit to take in regard to the whisky interest, but quite another thing to propose a different and better way. On this latter point, both of these men are silent.

Let us consider a few facts. Many, very many, men are born into the world with a propensity to evil ways, and the drink habit is one of the strongest of these propensities. This thirst for strong drink creates a demand for it. There is no real demand for any thing, good or bad, in this world, that some one or more do not stand ready to supply. To supply the demand for strong drink, distilleries are built for its manufacture; and so long as this demand exists, its manufacture will go on. It can not be stopped. It never has been, and it never will be so long as this insatiate appetite for strong drink continues.

Now, all governments must have a sufficient and steady revenue, or they could not be maintained. I know of no civilized nation that does not consider vinous and spirituous liquors as proper objects of taxation. The United Kingdom, free trade as it is, yet collects an immense revenue from wines and spirits; and this government, as early as 1790, enacted excise laws which taxed spirituous liquors; and the opposition to the collection of these taxes was so great in Northern Pennsylvania that Washington deemed it necessary in 1794 to call out 15,000 militia to quell the disturbance.

The right to make laws, to "levy and collect taxes," must of necessity carry with it power to enforce those laws; and if unusual means have to be employed to collect the liquor tax, it is only evidence of the unscrupulous nature of the whisky interest.

The situation, as I understand it, is this. The government is trying to collect a legitimate tax. There is no compact with Gambrinus, or the "other fellow," and no "mortgage on its boys." There is no sentiment in taxation.

I am no advocate of the liquor-business. I agree with Mr. Doolittle, that it stands in the way of the advancement of God's kingdom on earth, as do many other vices nearly if not quite as ruinous. Now, what shall be done to counteract the appetite for strong drink? I know of no remedy that does not apply to all vices and evil habits that afflict mankind. Laws which tax and hamper the liquor-interests, doubtless do some good. The rules of many business interests, which refuse employment to men addicted to the drink habit, has a salutary effect; the efforts of temperance societies are most potent means of reform; and the new gold

cure for inebriety, from all accounts, is working many remarkable cures.

□ But such is the magnitude of the evil that all unaided human efforts must fall very far short of meeting all the requirements of the case. The only potent and effectual cure for this and all the other evils that afflict the race is the complete and final triumph of the gospel of Jesus Christ. This may seem slow to those reformers who look for immediate results; but it is the divine plan. "There is joy in heaven over *one* sinner that repenteth."

Allegan, Mich. JULIUS TOMLINSON.

At thy right hand there are pleasures for evermore.—Ps. 16:11.

Do not fail to read Woodchopper's article in this issue.

THE first number of the *Bee-keepers' Enterprise*, published at New Haven, Ct., is out on time, and fully justifies our previous expectation. It is well printed, and shows good taste in its make-up.

HOW natural it is, when one is giving the exact requisites of a good bee-hive, that those requisites, when set in order, describe exactly the hive used, recommended, and sold by the describer! No crime in this. It is just a feature of human nature. Don't be offended. We are not hitting at any one in this issue.

So far we have had a rather peculiar spring. First it would be rather hot, then cold and rainy for quite a long period of time. Fruit-bloom, so far, has not proven to be any thing extra—indeed, while it was out the weather was cool and rainy. There has been an unusual amount of dandelions, especially upon our lawns. We like to see a large profusion of them in pasture lots; but somehow or other we do not like the looks of them on an otherwise nice lawn.

MR. ED. BERTRAND, of Nyon, Switzerland, has mailed us a copy of his bee-book, "Conduite du Rucher" ("Management of the Apiary"), translated into the Flemish language under the title of "Bestier der Bieënhalle." It has been printed in French and German, and will soon appear in Italian and Russian. We have had a call from Cuba for a bee-book in Spanish; but as we do not know of any we can not send one. We would suggest to Mr. Bertrand the wisdom of putting his work into Spanish also.

NEIGHBOR RICE, of Seville, has just brought us another load of bees. He wintered in the cellar, and in large two-story chaff hives. As he has always wintered very successfully with the absorbing cushions, both for cellar and for outdoors, he saw no reason for changing. His bees during the past severe winter came out as well as usual; and the result is, quite a number of nice bright strong colonies of Italians. The colonies that were put into the cellar have their usual summer entrances, but have a large chaff cushion on top, the whole held down by a sort of wire-screen cap. This wire cloth prevents bees from getting out at the top, and allowsl the "sweat," as he expresses it, to rise and pass off.

SINCE our editorial on page 363, more testimony has come in on the question of sealed covers. The preponderance of evidence now, taking a birdseye view of the whole, is quite decidedly in favor of absorbing cushions as against sealed covers. We desire to thank our friends for so kindly and so promptly responding; and, so far as we are concerned, the matter is settled in about this way: Sealed covers in outdoor wintering, protected by packing material, will do very well in the majority of winters; but during severe ones, the absorbing cushion (hives packed otherwise the same) seems to give the better result. We shall continue to give absorbents the preference, just as we have always done in our A B C of Bee Culture, and elsewhere where we have given advice to beginners.

PERHAPS some of our readers may think we are giving Aikin Bros. & Knight, in Trade Notes, a rather "big free ad." Well, if it is such it is entirely unsolicited on their part; and while we do not subscribe to *every* thing claimed in favor of their hive and system, we sincerely believe there are some good points in them, especially the non-swarming feature. And speaking of non-swarming, it may be well to say that we should not place our hopes too high, as so many times we have been on the eve of discovering a plan that would absolutely prevent swarms, and convert the swarming mania into a mania for honey-gathering, but over and over again we have been disappointed. In the present instances, we sincerely think the non-swarming methods proposed by Langdon, and Aikin Bros. & Knight, *promise* to accomplish more than any thing else we have before examined.

YES, there does seem to be a gleam of hope for the prevention of swarming. It appears to us that H. P. Langdon and Mr. Knight have been working upon the same principle, each without the knowledge of the other. Although both use a different appliance for accomplishing the result, both find the principle to be a success; namely, the alternate turning of the working force of two separate and contiguous colonies from one hive to another, in such a way that it impoverishes the one and strengthens the other, and at the same time keeps the working force of both in one super or set of supers. If we are mistaken as to the same principle existing in both methods, we should be too glad to be corrected. How often it happens that valuable inventions are evolved almost simultaneously by several persons! Take, as an example of this, the cold-blast smoker and the automatic hiving devices that seemed a year ago to be so numerous and so simultaneous in their appearance that it was hard to tell who really enjoyed priority.

THE CRANE AND CORNEIL SMOKERS.

SINCE our last issue we sent and got a Corneil smoker. We find that it is quite a little larger in size, both as to the bellows and fire-cup, than our regular Crane smoker. The Corneil works very nicely, and has indeed a very strong blast; and after trying it we were for the time being ready to confess that it was ahead of the Crane; but on comparing it with the Crane of smaller size, using the same effort on each bellows, we found that each sent a blast of smoke about the same distance; and that, when both were crammed tight with fuel, the Crane was considerably ahead. If the latter had been of the same size as the Corneil, the result would have been much more marked in favor of the Crane. Now, in saying all this we have endeavored to be just as fair as possible, putting aside any

interest that we may have in one of the smokers; for, as we have said before, we always want the truth to prevail, no matter where it cuts; and if subsequent developments prove that we are wrong, we will back down.

P. S.—Since writing the above, the following has come from E. E. Hasty, and will explain itself:

Friend Ernest:—I see by last GLEANINGS, page 405, that you, as well as the rest of us, have overlooked the main point in Corneil's induction smoker. Really the thing is simply an economical device for transforming *speed* into *volume*. If we should try to do the same thing by greatly increasing the size of the orifice we should have each puff all starting and stopping, and no steadiness to it. So far as a current of air moves by its own momentum, it must of necessity suffer a heavy percentage of loss in getting through a filled smoker—so many collisions and so many sharp turns to make. Whether a certain speed and volume would give the minimum per cent of loss, as compared with half that speed with twice the volume, is a very legitimate subject for experiment. Mr. Corneil's experiments seem to indicate that the latter is very much the more economical. In fact, our unaided thoughts would probably lead us to the conclusion that a slender stream of air moving at a very high rate of speed would lose over 90 per cent of its force in getting through, while a more voluminous and slower stream might get through with a loss as small as 50 per cent.

Certainly the experiments should be repeated in other hands, and the Crane smoker should have its fair show; but all the while let us remember that arguing that a thing can not be, when it actually *is*, rather befits an ecclesiastic of 1493 than a practical man of 1893. Fraternally, E. E. HASTY.

Richards, Ohio, May 23.

We are open to conviction, and in the mean time shall await further results from S. Corneil. We have to-day sent him one of the latest Crane smokers. Some time between now and our next issue we hope to make a Corneil smoker, using the same bellows and the same fire-cup as the Crane, but putting in a blast-tube as we find in the Corneil, then we can compare the blast of the two smokers on an exactly equal footing.

Later.—After writing the above we made two smokers, exactly alike, both on the Crane line, but differing in the manner of communicating the air from the bellows to the fire-cup. Both have the same-sized holes in the grate; the same-sized bellows and fire-cup; both curved nozzles, and mounted on the bellows in the same way, with the exception noted. We performed the experiment by blowing upon some nails lying upon a bench, before several of our workmen, using the same effort on each bellows; and the result in every case was, that the Crane was ahead. After loading the two equally, or, more exactly, packing the nozzles of each tight with handkerchiefs, the Crane was very decidedly ahead in strength of blast; in fact, it made very little difference whether it was loaded or not. The experiment was tried by two of our men, with like results.

LOOK OUT FOR HIM.

BE careful how you send money to A. D. Ellingwood, of Groveton, N. H. He has not only received money for work which he solicited, and made no returns, but he damages those who intrust him with orders, ever so much more than the money amounts to. As an illustration: He solicits the work of printing catalogues for beekeepers. After he receives the money he keeps putting his customers off, and finally does not answer at all; and the consequence of placing some faith in his promises is, that our friends are prevented from getting out their catalogues in time to be of any service to their customers. In some cases, after having delayed the matter until the catalogue was of but little use, they finally, in desperation, paid over the money to have the work done elsewhere. We have been corresponding with him for some time past, and have waited for him to return the money, which he has agreed to do; but as he does not do any thing but disappoint and vex good folks, we now make good our *promise* to *him*, and warn people against sending him any more money. One of the saddest things about it is, he seems to be justice of the peace in his own neighborhood, and may be, in some respects, a very good sort of man. The complaints from different ones, for months, can be produced if need be.

THE OLD-FASHIONED TWO-STORY HIVES VERSUS THE NEW AND SMALLER HIVES.

THERE was some talk in some quarters, to the effect that the large two-story chaff hives were things to be relegated to the past; but during the very cold winter and inclement spring just past, the "old reliables" have shown that they are not to be lightly esteemed. Reports from all quarters seem to show that colonies in large chaff hives, with loose chaff packing on top—no sealed covers—have wintered their colonies the best. No, no! let us not be in too great haste to cast aside those old devices that are true and tried. Big chaff hives are cumbersome and unwieldy; but ours, that have been in use for the last ten or twelve years, are practically as good as new; and we see no reason why, with an occasional coat of paint of pure lead, they should not last ten years more. The original cost, divided by 20, makes the price insignificant; and as to their being cumbersome, the majority of ours have stood in the same location year after year, it being unnecessary to move them. These hives have their legitimate and proper place. Where it is not necessary to move bees, and where the winters are not so severe but that the outdoor method can be practiced with success, the large chaff hives are a good investment. But one who moves his bees from one apiary to another, and who winters in the cellar, had better use the single-walled hives; or, preferably, the small one-story chaff.

N. B.—If there is any thing in the above that conflicts with our former published statements, all right. We want the *truth*, even if we do have to cross our tracks.

PATENT-MEDICINE ADVERTISEMENTS IN THE READING-COLUMNS OF YOUR HOME PAPER.

HERE is what the Philadelphia *Farm Journal* says about it:

We do not remember ever having seen so many trashy advertisements in the newspapers as there are to-day. Miserable lies are told, right on the editorial pages, about some so-called wonderful cure of the man whose portrait is given. Why not give the quacks the entire paper? The *Farm Journal* does not regret its rule, which for fifteen years has never been deviated from, excluding quacks from its columns. While we probably cut out six or seven thousand dollars a year, we think it pays to give our readers a clean, decent paper. What do *Our Folks* think?

And here is what A. I. Root has to say in the matter: Every editor who gives place to these pictures of people who have been cured by "almost a miracle" is obliged to say, "We believe it is true," or something in substance amounting to the same. Unless the editor of the paper will do this, the proprietor of the swindle will not give him a job. He must sell his good name or else he can not get the large sum of money that these chaps offer. I know, because the matter has been presented to me. These fellows say, "You must put the advertisement just where we tell you to put it; you must say the exact words we tell you to say; in fact, you must have nothing to say in the matter whatever, and we insist on saying what we have to

say in the advertisement. Unless you do this you can not have our patronage." In other words, the editor is to sell himself, body and soul — his influence, his reputation, if he has any, for which he is to receive so many cents per line, or inch of space. You may say that all periodicals are accepting these miraculous-cure advertisements, and that everybody understands it, and so nobody is deceived. My good friend, when the editor of a newspaper heads an article in the reading-columns with "Almost a Miracle," and says, toward the close of said miracle advertisement, "We believe it is true, every word of it," are none of his readers deceived? If not, why then does the medicine-man pay hundreds or thousands of dollars for the privilege of making the editor say just what he tells him to say?

THE VARIOUS BEE-CANDIES FOR MAILING-CAGES, ETC.; THE ADDITION OF ANY QUANTITY OF EGG IS DELETERIOUS.

From some preliminary tests that we have made with the various kinds of bee-candy for long-distance shipment, we have come to the conclusion that, while the addition of the white of an egg, as spoken of on page 167, to powdered or confectioners' sugar, makes a soft nice candy, it does not answer at all the requirements of a bee-food. We find, by tests, that such candy will keep soft for several weeks in a nice moist condition; but so far it kills the bees every time. We then tried making candy, taking confectioners' sugar, with equal parts of the white of an egg and honey, enough sugar being mixed in to make a stiff dough. For a time at least we thought we had struck the *ne plus ultra;* but every cage of bees which we have tested with this kind of candy, in a few days shows a lot of dead bees. We therefore conclude that the white of an egg, even in a small quantity, is decidedly detrimental. We shall continue to test the matter in a small way; but at present we know of nothing better than confectioners' sugar and first-class honey, mixed into a stiff dough; and we are inclined more and more to the belief that it is the *honey* which the bees are able to extract from grains of sugar, that is the real food element, and that which sustains life in the cage. With almost any cage of this candy, the dry particles of sugar will rattle out. We believe it was Doolittle who made this or a similar suggestion some time ago. Possibly he may be able to enlighten us further.

TAKING PAINS TO AVOID MISTAKES.

A few days ago a friend went out into the woods to get some basswood-trees. They were to be from ten to fifteen feet—not less than ten nor more than fifteen. I told the man to take a ten-foot pole, but he said he could guess near enough. But I remonstrated, urging that we had had some sad troubles just from that very fashion of *guessing* at the height of basswood-trees. I told him we could get him a pole in a minute or two; but he said he could measure on his hands as well as with any ten-foot pole. I felt sad and discouraged as I saw him drive away, because so much of my life is made up of trying to correct and make good the mistakes and blunders of other people. In the afternoon he came in with a great two-horse wagonload of trees. The order was for 50 basswood-trees, and they were to be shipped to New Jersey. A great part of them were over 20 feet tall, and the trunks of some of them were an inch or two through. It took an extra half-day to get a box to ship them, and perhaps the trees may be a great deal larger than the man wants. *Some* men would be satisfied to pay extra freight in order to get bigger ones, and some wouldn't. When I told him about it he said he was sure there were none of them more than 15 feet high. Trees exactly according to order would have been easier to dig, much lighter to box up, and perhaps more likely to grow. We chopped them down to 12 and 15 feet, and fixed them up the best we could; but it was not just what the man expected or wanted.

Again, Dr. Mason ordered a log house made of beeswax, to be exhibited at the World's Fair. He saw the man who was to make it, and I supposed that there was a perfect understanding as to what he wanted. I have just learned that it has not as yet been on exhibition, because it was made twice as large as ordered, and it would not go into the place assigned to it.

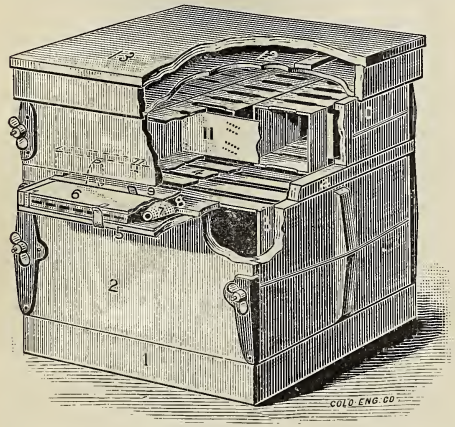
Once more: I wanted some boxes or cases to shut up our hot-bed sashes from wind and storm and breakage during the summer time. They are to be stored right between the ends of the beds, where they are to be used in the winter time. I asked the man who made them to take the dimensions carefully, and have them so they would just clear the sashes, both lengthwise and sidewise. I think I asked him to take a stick and measure carefully, because I wanted them just right. They are just right sidewise; but they are two inches longer than necessary lengthwise. Well, two inches is a small matter, and the extra amount of lumber would not cost any thing to speak of. What is the use of being so precise? I wish I had time to explain right along all day why some things must be exact. Sometimes two inches makes a difference. In this case our paths are only 16 inches wide, as you remember. The thickness of the lumber, and the necessary "play" will take out about three or four inches from the 16. Now, you take out two inches more, and you have only an eight or ten inch space to squeeze through when you pass the cases of sashes. You have to get through these passages day after day, very many times, and these cases will probably last a good many years. How much money would it be worth to have that two inches, where space is so needful? You may say I should not work so close. But, my friend, the ground where our hot-beds are cost me $2000 an acre; and with the exhaust steam and the piles of manure, we want every available inch for raising plants. These mistakes of things not being made correct and according to order, and the consequent refusal to receive work, are happening every day. We see it in al kinds business. It estranges friends and makes lawsuits, unless somebody is so good-natured as to swallow the disappointment and give up expecting accuracy or comfort in this world of ours. For many years I have *begged* of people to pick up a stick and cut it off the length they want a thing to be made; but they laugh at me, but afterward they grumble and get mad when the carpenter or somebody else dosen't do as they told him. If you want to give two dimensions, saw off your stick to the longest dimension, and then cut a notch for the shorter one. If you want to take the dimensions of a box or the inside of a room, take two sticks. Lap them so one end of each just touches the inside edge of your room or box. Now drive in two nails, and give the boy or man your stick, and tell him that is the dimension, and also bid him bring the stick back again. He will not dare to bring the stick with work that does not match it. If he loses the stick, or throws it away, you have a clear case against him. He can not dispute what you said, or tell you that it was your own blunder. Now, friends, just try cutting sticks. Such sticks are worth very much more than a "sharp stick" *after* somebody has made you something you don't want or can't use.

TRADE NOTES.

AIKIN BROTHERS & KNIGHT'S NEW HIVE; ANOTHER SYSTEM FOR PREVENTING SWARMING.

Some three or four years ago, as our readers will remember, the writer was very much interested in closed-end frames; and his enthusiasm was fired up none the less after visiting Mr. P. H. Elwood, and observing him, on a number of occasions, manipulating these same closed-end frames with ease and dispatch.

Mr. Elwood and Mr. Hetherington, and others who use the frame in the East, in the



AIKIN BROTHERS & KNIGHT'S NEW HIVE.

summer time use only panels to cover up the exposed sides of the brood-nest, the ends of the frames answering as the end of the brood-chamber proper. But it seems that Aikin Bros. & Knight have devised a hive somewhat on the original Quinby plan, to take closed-end frames, but differing in this respect, that the compression feature closes up on the ends of the frames as well as on the sides. How this is accomplished is better described from a brief description taken from Aikin Bros. & Knight's advertising matter.

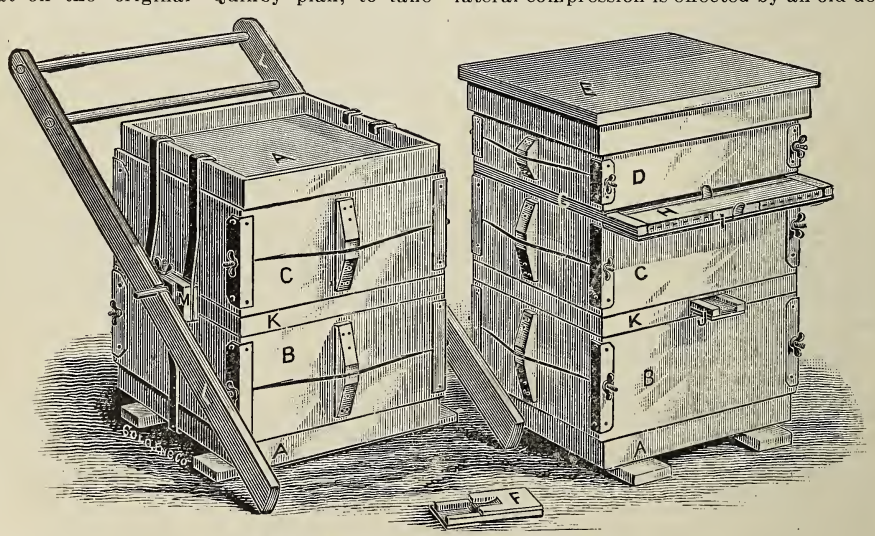
No. 1 is a reversible bottom-board and feeder. Deep side up for winter and feeding. No. 2 is the brood-chamber. It takes a closed-end standing frame 9x17. The bee-spaces are in the bottom-board and honey-board. Both sides and ends are compressed upon the frames by the nuts and rods. When released for manipulation, the frames rest upon the bottom-board rim ends. The chamber is reversible.

The alighting-board (5) is a part of and attached to the honey-board (4), while the entrances (8 and 9) lead respectively under and above the honey-board. The queen-trap (6) covers the brood-chamber entrance. No. 10 is the super, held together by the rods—neither super nor brood-chamber is nailed at the corners—and both sides and ends compressed upon the sections. By compression and spurs, the super sides and separators support the sections perfectly, without T's, slats, followers, or wedges. The 8 and 10 frame hive supers take respectively 2 and 3 separators, and 24 and 32 1⅞-wide sections. They may be full separatored by adding plain wood or tin separators, or by spur separators. For extracting, the super takes 8 1⅞-inch-thick frames in place of the sections. Nos. 12 and 13 are the inner and outer cover.

The two-colony, non-swarming combination brood-chambers (B and C, cut No. 2) each contains a colony of bees. K is the separating-board dividing the colonies. J is the alternator that passes the bees out from the lower hive and returns them to the upper, thus working two colonies in one set of supers. To prevent swarming, both the colonies are reversed *en masse* once a week in the swarming season. The hives are clamped together by the appliance M, elevated by the hoister (L), and revolved as a wheel on its axis. Thus, once a week the queen-cells are upset and the bees alternated.

Loveland, Col. AIKIN BROS. & KNIGHT.

Just how far this means of producing side and end compression may prove to be practical, we are not able to say. In the sample hive we now have at hand (evidently one of the first models), some modification should be made to make the principle work perfectly, as we find there is not sufficient end and side play. With the varying conditions of our weather there should be considerable take-up. The manner of producing the compression will be perfectly evident, we think, from the engravings. The lateral compression is effected by an old device, and one that, we believe, is in use by Henry Alley and some others whose names we do not just now recall. The end compression is effected by a bridge-shaped cleat. As the rod is drawn up, it squeezes on the highest part of the cleat, thus pressing the end-board against



THE HIVES PREPARED FOR NON-SWARMING.

the closed-end frames, one of which is shown at 3, in the first figure.

A novel feature of the super is, that there is absolutely nothing except compression and separators to hold the sections—supporting-slats, etc., being dispensed with. It was Oliver Foster, we believe, who first constructed a super on this plan; but just how far the idea proved to be a success, we are not able to say; but Aikin Bros. & Knight have their separators perforated at regular intervals in such a way as to leave burr edges at the holes, something as you will find on the rough side of a nutmeg-grater. These separators are let down in between the sections, the burr edges coming just opposite to the edges of the uprights of the sections. Pieces of tin, having similar edges, are nailed to the sides of the supers, spaced off so as to come opposite the uprights. Now, when compression is applied to a super filled with sections, these rough edges are supposed to imbed themselves into the edge of the section; and this, together with compression, is designed to hold them up. In actual practice, however, we are of the opinion that this plan would not prove to be an entire success. It may do in Colorado, where the climate is less variable than here; but in our locality, if we apply an *unyielding* compression on a set of sections during moist weather, and dry hot weather comes on, the sections seem to be quite loose. The compression that we find practical in our locality is a yielding compression, or one produced by the springing of the following-board.

The hive proper, as will be seen from the engravings, is an invertible one; and the manner of accomplishing the inversion is effected by the hoister L. This device is quite similar to the one used by J. M. Shuck.

Although there is nothing particular new in the *manner* of reversing, it is applied to accomplish a rather new use—the prevention of swarming. Aikin Bros. depend not entirely upon reversing to destroy cells (we do not believe this is always reliable), but as a *means* to transfer the working force of two colonies of bees from one to the other, and *vice versa*, often enough so as to impoverish for a few days one hive to such an extent that what cells are not destroyed by the reversing will be torn down by the queen, because the condition of prosperity that ruled a few days before has been removed. After the approach of the swarming season, if we understand the method correctly, the working force of the brood-chamber B, by a simple device or alternator, J, Fig. 2, are turned into the brood-chamber C. The alternator is a sort of entrance-block, so constructed that the bees can be turned by a scheme of bee-escapes from one hive to another. The bees, not being able to pass out of the entrance by which they entered, will use the upper entrance between D and H, just above the honey-board G, separating the two lower hives from the super D. When the colony in C is pretty near the point of swarming, the pair is reversed in the manner shown in the left of Fig. 2, hive B being placed uppermost and C below. The alternator, J, is turned the same side upward as before, and the working force is again the upper and now impoverished brood-chamber, where cells have been destroyed, and all thoughts of swarming have been given up. The design is, to keep the working force of two colonies confined to one super or one set of supers, instead of having this same force distributed in two different hives, and on two different supers, with the liability of swarms from either.

So far the *principle* of non-swarming seems to be the same as that of H. P. Langdon, although the *method* by which it is accomplished is entirely different. The Langdon plan, as described on page 406, is, to change the working force from one hive to another on a horizontal plane. The plan above given is to change the working force on a perpendicular plane. Mr. Knight, if we are correct, has used this plan successfully for two years.

Aikin Bros. & Knight say the same plan of non-swarming can be adapted to any hive having loose bottoms by using a honey-board and the "alternator." Indeed, they have sent us one to be used on a Dovetailed hive.

Another peculiarity of the new hive is, that the entrance is at the top. This simplifies the construction of the alternator so that the working force can be very readily turned from one hive to another. Then, besides, it is considered an advantage to have the entrance near the supers, because it is thought that the bees will enter the same more readily. As for wintering, Messrs. Aikin Bros. & Knight think it is better to have top ventilation and the bottom tight.

We notice that we have omitted to say any thing about the queen-trap, as shown at 6, Fig. 1. This is a part of the honey-board, and is designed to trap the queen where swarming is allowed, and it is not deemed best to let the bees or queen escape.

TOBACCO COLUMN.

Please send me a smoker, as I have discontinued the use of tobacco entirely. If I ever use it again I will pay for the smoker.

Dexter, N. Y., March 6. C. G. POTTER.

I think I am entitled to one of your smokers, as I am now a subscriber to GLEANINGS. If I ever use the weed again I will pay you for the smoker. J. H. SIPLES.

Wrights, Miss., April 15.

I have been a subscriber to GLEANINGS since Jan. 1st last, and since that time I have thrown down the cigarette, with the determination of not taking it up again. I therefore claim the smoker as my reward, and hope it will be the means of keeping me from breaking my promise. If I use tobacco again, of course I will pay for the smoker. L. L. NEYLAND.

Berwick, Miss., Mar. 18.

I am a subscriber to GLEANINGS. I noticed your Tobacco Column. My boy has been using tobacco for some time, and I told him about your promising a smoker to those who quit using tobacco or cigarettes. He says he will quit using tobacco if I will get him a smoker. He has two swarms of bees in Dovetailed hives. I think he is entitled to one of your smokers. If he ever uses tobacco again I will promptly pay for the smoker. O. J. WEEKS.

West Webster, N. Y., March 13.

I have been induced, through GLEANINGS, to quit chewing tobacco; and if you wish you may send me a smoker; and if I ever use the weed again I hereby agree to pay you for the smoker. Tobacco is very injurious to me, my nervous system being so susceptible to the narcotic poison contained in the weed that it made me feel like a drunk man. Friends, I hereby give you all warning. Heed my advice, and do not use the filthy weed any more, for it corrupts both the physical and mental energies of man.

ENOCH ANDERSON.

Comanche, Texas, May 10.

ADDITIONAL EDITORIAL.

THOSE OLD BEE-BOOKS.

As promised in our last issue, we begin the first installment of articles reviewing some old (or, rather, ancient) bee-books. The first one of the series is from the pen of our proof-reader, and will be found on page 435. Its perusal, we feel sure, will be found to be interesting and profitable; for, as our proof-reader says, "It is often as profitable to know what those old writers did *not* find out as it is to know what they did; and a piece of negative information is frequently as useful as that which is positive." We hope to have this series continued for some little time; and knowing the writer of them as we do, his intense enthusiasm for the work, we feel sure that he will be able to give us something as readable and spicy as would come from the pen of Mr. Emerson E. Hasty himself—the one who is conducting a series of bee-paper reviews for the *Bee-keepers' Review*.

THE GAMBLING CRAZE AND COUNTERFEIT MONEY.

IN my remarks in our issue for April 1 I omitted to mention counterfeit money. That was brought to mind by a printed circular and pretended newspaper clipping, mailed to us by our good friend C. J. Baldridge, of Kendaia, N. Y. The circular is not very much different from those coming from the venders of green goods for some years back. They pretend to have plates stolen in some manner from the United States Treasury Department. These plates are taken over to Canada, and used to print genuine United States money. The circular is very confidential, of course. We quote just one paragraph from the bogus newspaper clipping:

As the government only is the loser, and is so well able to stand it, the average citizen has no conscientious scruples whatever in taking advantage of the offer of these men, especially as there is no risk or danger in handling these bills, if they use proper precautions and keep their business to themselves. A close mouth, as they tell you, is the secret of success in this nefarious scheme.

The whole thing is very ingeniously gotten up to work upon the feelings of any person who begins to think and talk to the effect that making money by honest day's work is altogether too slow and humdrum, and that very few ever acquire any competence in that way. It appeals to the average young man who thinks he is not getting as much pay as he deserves. This period is very likely to come to most of us somewhere in the teens. If it were only boys in their teens who have such notions, it would not be so bad. I hope every reader of GLEANINGS is by this time well aware that these men never have any counterfeit money at all. If it is exactly the same as good money, and no expert can tell the difference, why should they want to swap $4000 of it for $400 of other money? What is the use of swapping at all? And yet more or less people are falling into their snares, and swapping their money for *dear-bought experience* right along every day. Beware of the tempter.

RECEIVING PERISHABLE GOODS, ETC.

At this season of the year it is almost inevitable that there should be more or less losses in shipping and receiving perishable goods. How shall we make these losses as little as possible? and when they come, how shall we adjust them in a Christianlike way? I will give you my ideas of the matter by one or two illustrations. A few days ago we received a barrel of pineapples, and more than half of them were more or less decayed. Nine out of about 75 were utterly worthless, and went directly to the compost-heap. The order was a personal one, given a runner, and he agreed to send me good sound fruit. I might have sent them back, perhaps; in fact, there are people who do just that thing, or refuse to receive them from the railroad company. In this case they would have been nearly or quite a total loss, for refusing to take them from the railroad company would have finished up the decay that was going on so rapidly. Without any instructions from the shippers, I took the worst of them and had them canned for sauce. It is rather expensive sauce, but it is better than to have them lost. Then I sold the rest of them, some for half price, some for three-fourths price, and the good ones for full price, reporting to the shippers, of course, at once, their condition, and what I proposed to do. They rebated the price of the nine spoiled ones, but said that, as I had made use of the rest of them, they did not think they ought to make any reduction. When I pointed them to the fact that their agent agreed to give me *sound* fruit, they said the agreement was only that sound fruit should be *sent*. I do not think they did right; that is, I think they should have given me some encouragement for trying to save their property from loss; but I am glad I helped to save them, even if I did not make any money by it.

Again, we sent 1000 Wakefield cabbage-plants to a friend in Kansas. When they reached the express office, as he lived some miles away they remained there some over two days before he saw them. Then he refused to take them. I wrote at once to take the plants, and do the best he could with them, and what did not grow we would try to make good. But by this time it was too late. We presume they were thrown away. Now, the express company was an innocent party to this transaction. They carried the plants all the way to Canton, Kansas, in three days or a little less; and yet our friend leaves them on their hands. This matter of refusing to receive goods because they do not happen to reach destination in good order, has, perhaps, made more trouble between express companies and their customers than any other one thing. Somebody, of course, has got to pay the charges. If the express company is made to lose it, you may be sure they will be pretty careful in the future about carrying perishable stuff unless they have charges advanced; and where the goods go over different lines, especially through the South, it may be difficult for them to say just what the charges will be; therefore the only remedy is to be sure to charge enough. We have for years been in the habit of guaranteeing the charges on any goods we ship. Well, here is what our friend in Kansas gives as a reason for refusing the plants:

The roots looked all right, but the tops were all all yellow; and it just looked to me, if I should set them out, I should have all my work for nothing.
Canton, Kan., May 23. HENRY MARTIN.

Of course, I would not expect anybody to go to the trouble of putting out plants in the field unless there were a reasonable prospect that the greater part of them would live. Every gardener should be familiar with the common practice of "heeling in" plants. Take them to a little spot of good mellow earth, right out in the open air. Separate the plants just enough so the soil can be packed around the roots of each individual plant. A thousand cabbage-plants can be nicely heeled in, say in two square yards of ground; and they can stay there, if circumstances require, two or three weeks. When the plants are received in poor order, the proper thing to do is to try to save them in this